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ABSTRACT

This report uses data from the National Postsecondary Student Aid Study and the Beginning Postsecondary Students Longitudinal Study to examine how low income undergraduates (with family incomes below 125 percent of the federally established poverty threshold) finance their postsecondary education, focusing on the importance of financial aid. The report uses narratives, tables, and graphs to describe the demographic characteristics and enrollment patterns of low income students and compares them with other undergraduates. It examines dependent, single independent, and independent students with dependents separately. It examines students' financial needs, the type of financial aid they receive and the amount and the relationship between financial aid and cost. Next, it describes two important sources of support other than financial aid: parental support and work. Finally, the report examines persistence and attainment among low income students who enrolled in postsecondary education in 1989-90. A concluding section notes that financial aid, parental contributions, and work do not add up to estimated costs and possible reasons are suggested. Among highlights are: that 20 percent of all undergraduates are from low-income families; that 88 percent of these students received financial aid averaging $5,800; and that there was an average unmet need of $4,900. A glossary and methodological information are appended. (Contains 20 tables and 11 figures.) (DB)

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Statistical Analysis Report

April 1996

Postsecondary Education Descriptive Analysis Reports

How Low Income Undergraduates Financed Postsecondary Education: 1992–93

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Statistical Analysis Report April 1996

Postsecondary Education Descriptive Analysis Reports

How Low Income Undergraduates Financed Postsecondary Education: 1992–93

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Highlights

Low Income Undergraduates

- Overall, 20 percent of all undergraduates enrolled in 1992–93 were low income (that is, their family income was below 125 percent of the federally established poverty threshold for their family size) (table 1). From 17 percent to 19 percent of all undergraduates at public and private, not-for-profit 4-year institutions and at public less-than-4-year institutions were low income. In contrast, 42 percent of all undergraduates at private, for-profit institutions were low income.

- Low income undergraduates were about as likely as other undergraduates to enroll in public 4-year institutions (29 percent and 31 percent, respectively) and private, not-for-profit 4-year institutions (13 percent and 15 percent, respectively) (table 3). However, low income undergraduates were much more likely than other undergraduates to enroll in private, for-profit institutions (16 percent versus 6 percent), and were somewhat less likely to attend public less-than-4-year institutions (39 percent versus 47 percent).

- In 1989–90, 76 percent of low income undergraduates reported that the fact that an institution offered the course of study they wanted was a very important consideration in their choice of institution (table 4). They cited this factor far more frequently than any other. However, financial factors were important as well. Forty-five percent of low income undergraduates reported that obtaining the financial aid they needed was a very important consideration (compared with 20 percent of other undergraduates).

Educational Costs and Financial Need

- The average budget for low income undergraduates who attended full time, full year ranged from $8,100 at public less-than-4-year institutions to $15,500 at private, not-for-profit 4-year institutions (table 7). The average expected family contribution (EFC) was $1,600.

- Ninety-nine percent of all low income undergraduates had financial need (table 7). The average need (budget minus EFC) was $9,400. Average need ranged from $7,000 at public less-than-4-year institutions to $13,600 at private, not-for-profit 4-year institutions.

Financial Aid

- In 1992–93, 88 percent of all low income undergraduates attending full time, full year received some type of financial aid (table 8). The average amount received was $5,800. Eighty-four percent received grants, 48 percent borrowed through

student loan programs, and 15 percent participated in work-study programs. Eighty-three percent received some type of federal aid (table 9).

- On average, financial aid covered 42 percent of student-reported costs for low income undergraduates attending full time, full year; 65 percent of their aid was in the form of grants, and 26 percent was in the form of loans (table 12).

Net Cost and Unmet Need

- The average net cost (student-reported cost minus financial aid) for the low income full-time, full-year undergraduate and his or her family was $7,600 (table 13).

- Their average unmet need (institutionally determined budget minus financial aid minus EFC) was $4,900 (table 13).

Other Sources of Support

- Low income, financially dependent undergraduates attending full time, full year were less likely than their non low income counterparts to receive direct contributions from their parents (50 percent versus 78 percent) (tables 15 and 16). Low income dependent undergraduates who did get help from their parents received an average of $2,800, compared with $5,600 for non low income undergraduates.

- Among full-time, full-year low income undergraduates who worked while enrolled, the average was about 22 hours per week. Those who worked earned an average of $4,200 during the 1992–93 academic year (including summer 1992). Compared with their non low income counterparts, low income undergraduates attending full time, full year were less likely to work while enrolled (63 percent versus 77 percent) and were more likely to borrow (48 percent versus 30 percent) (tables 15 and 16).

Foreword

This report describes how low income undergraduates—that is, undergraduates whose family income was below 125 percent of the federally established poverty threshold for their family size—finance their postsecondary education. It examines dependent, single independent, and independent students with dependents separately. First, the report describes the demographic characteristics and enrollment patterns of low income students and compares them with other undergraduates. It then examines their financial need, the kinds and amounts of financial aid they received, and the relationship between financial aid and cost. Next, it describes two important sources of support other than financial aid: parental support and work. Finally, the report examines persistence and attainment among low income students who enrolled in postsecondary education for the first time in 1989–90.

The report uses data primarily from the 1992–93 National Postsecondary Student Aid Study (NPSAS:93), a survey designed to answer fundamental questions about financial aid and to detail undergraduates' education expenses, sources, and types of financial aid. The report also uses data from NPSAS:90 and the Beginning Postsecondary Student Longitudinal Study (BPS: 90/94), which followed a sample of students identified in NPSAS:90 as first-time beginning postsecondary students in the 1989–90 academic year.

The estimates in this report were produced using the National Center for Education Statistics (NCES) Data Analysis System (DAS), a software application that allows users to specify and generate tables from NPSAS and BPS data files. Each estimate produced in a table is accompanied by the standard error and weighted sample size on which the estimate was based. The DAS is available to anyone interested in further exploring the NPSAS or BPS (see appendix B for a more detailed discussion and directions for obtaining a copy).

We hope that readers of this report will find it informative and useful. We welcome recommendations for improving the format, content, or analysis to make subsequent reports even more informative and accessible.

John H. Ralph
Acting Associate Commissioner
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Introduction

For students considering pursuing a postsecondary degree or certificate, one of the most critical deciding factors is their ability to marshal the necessary financial resources. Paying for undergraduate education has always been seen as primarily the family's responsibility to the extent they can afford to do so. Tapping their own resources, students and their families use current income, savings, and borrowing against assets. Students sometimes work while still in high school to earn money for college, and the majority work while enrolled in postsecondary education.[1] Parents may start saving for their children's education many years before the child enrolls. Sometimes they take an additional job or borrow against assets such as a house. Low income families rarely have substantial savings to draw upon or assets to borrow against, and are unlikely to have very much discretionary income after paying for housing, food, clothing, and other basic necessities. In short, without financial assistance, postsecondary education would be out of reach for most low income students.

The federal government has established a broad range of student financial aid programs to provide low income students with the opportunity to participate in postsecondary education. Some of this aid has been in the form of grants, and some in the form of loans and work study. States and institutions do their part, too. Many states provide substantial funding for postsecondary institutions, allowing them to keep tuition well below the actual cost of educating a student, and some have their own student financial aid programs as well. Institutions and other organizations have also helped by providing large amounts of need-based aid. In 1992-93, the federal government awarded $23.4 billion dollars in general aid to postsecondary students; states, $2.1 billion; and institutions and other organizations, $7.3 billion.[2]

This report examines how low income students pay for their postsecondary education, focusing on the importance of financial aid. The report begins by describing the demographic and enrollment characteristics of low income undergraduates and by comparing their characteristics to those of other undergraduates. It then examines low income students' educational costs, financial need, and their use of financial aid and other sources of financial support. Finally, it compares the persistence and attainment of low income and other students.

The primary source of data for the analysis was the 1992-93 National Postsecondary Student Aid Study (NPSAS:93). These data are supplemented with data from two other postsecondary education surveys: NPSAS:90 for information not available from NPSAS:93 on students' reasons for choosing institutions; and the Beginning Postsecondary Students

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[1]See Laura Horn, *Undergraduates Who Work While Enrolled in Postsecondary Education: 1989-90* (Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, 1994), NCES 94-311, for a description of how much undergraduates work while enrolled.

[2]The College Board, Washington Office, *Trends in Student Aid: 1984 to 1994* (Washington, D.C.: 1994),4.

Longitudinal Study (BPS:90/94) for information on persistence and attainment for NPSAS:90 students who began their postsecondary education in 1989-90.[3]

Definition of "Low Income"

For this analysis, "low income" undergraduates are defined as students with a family income below 125 percent of the federally established poverty threshold for their family size.[4] For 1991, the poverty thresholds and 125 percent of these levels were as follows:[5]

Family size	*Poverty threshold*	*125 percent of the poverty threshold*
1	$7,086	$8,858
2	9,165	11,456
3	10,860	13,575
4	13,924	17,405
5	16,456	20,570
6	18,587	23,234

This definition has several advantages. First, it is independent of who goes to college. In other words, the low income students in this analysis are poor relative to the general population, rather than just the lowest income students who enroll in postsecondary education. Second, the federal poverty levels are stated in terms of both income and family size, allowing for appropriate comparisons between single students and students in larger families. Third, the poverty levels are adjusted for inflation and updated annually, permitting meaningful comparisons over time.

The decision to use 125 percent of the poverty threshold as the cutoff for this study was partly practical, reflecting a desire not to go too far above the poverty level, but at the same time to get a large enough sample to be able to find differences among subgroups. It is worth noting that 125 percent is also a commonly used cutoff point for reporting on low income families (see the *Statistical Abstract of the United States*, for example).

Overall, 20 percent of all undergraduates enrolled in 1992-93 were low income according to this definition (table 1). Low income students made up roughly similar proportions of the total student population at public less-than-4-year and 4-year institutions, and at private, not-for-profit 4-year institutions (17 percent to 19 percent) (figure 1). Private, for-profit institutions, in contrast, had a much larger concentration of low income students (42 percent). However, relatively few students (only 8 percent of all undergraduates) enrolled in this type of institution (see table 3).

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[3]See appendix B for more information on NPSAS and BPS.

[4]Income is defined as the sum of adjusted gross income and untaxed income.

[5]U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States: 1994* (Washington, D.C.: 1994), 480. The 1991 income was used to determine a student's eligibility for financial aid in 1992-93.

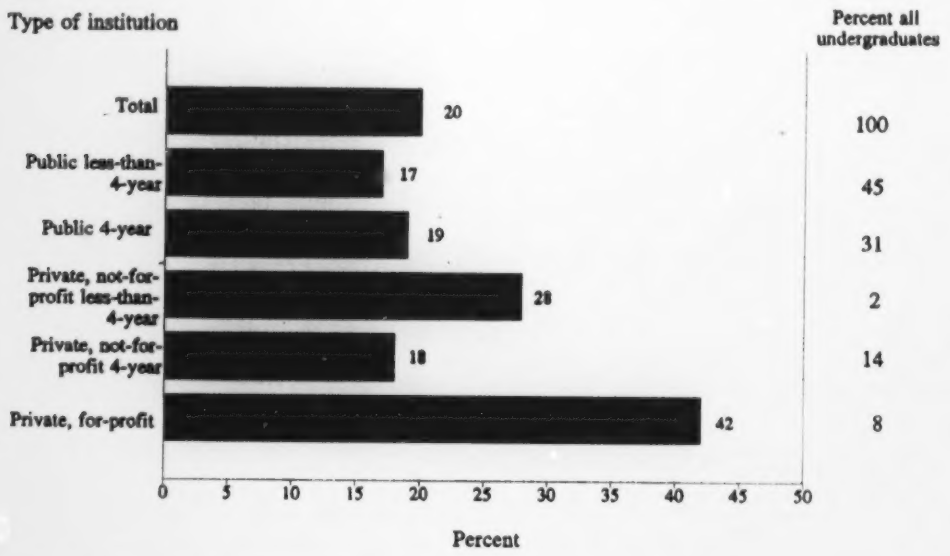
Table 1—Percentage distribution of undergraduates according to income status, by selected student and institutional characteristics: 1992–93

	Low income	Not low income
Total	20.2	79.8
Gender		
Male	17.9	82.1
Female	21.9	78.1
Race–ethnicity		
American Indian/Alaskan Native	35.2	64.8
Asian/Pacific Islander	21.8	78.2
Black, non-Hispanic	32.8	67.2
Hispanic	30.6	69.4
White, non-Hispanic	17.0	83.0
Dependency status		
Dependent	11.5	88.5
Single independent	30.7	69.3
Independent with dependents	25.8	74.2
Single parent status		
Not a single parent	17.1	82.9
Single parent	57.1	42.9
Institution type		
Public less-than-4-year	17.4	82.6
Public 4-year	19.4	80.6
Private, not-for-profit less-than-4-year	27.9	72.1
Private, not-for-profit 4-year	18.2	81.8
Private, for-profit	42.2	57.8
Degree program		
Associate's	19.0	81.0
Bachelor's	18.3	81.7
Certificate/formal award	29.3	70.7
Other undergraduate	20.2	79.8
Attendance status—first term enrolled in 1992–93		
Full-time	24.7	75.3
Part-time, half-time or more	20.5	79.5
Part-time, less than half-time	10.9	89.2
Delay in postsecondary enrollment		
No delay	14.9	85.1
1 year	23.3	76.7
2–4 years	28.9	71.1
5 years or more	23.8	76.2

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Figure 1—Percentage of undergraduates who were low income, by type of institution: 1992–93



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Certain groups were particularly likely to be in the low income category, most notably minorities and single parents (table 1). In 1993–94, about one-third of black, non-Hispanic, Hispanic, and Native American undergraduates and more than half (57 percent) of single parent undergraduates were low income. In contrast, 17 percent of white, non-Hispanic undergraduates and 17 percent of undergraduates who were not single parents were low income.

Income and Dependency Status

Although the definition of low income used in this analysis has no connection to the financial aid system, it is important to understand that whether or not a student was categorized as low income was related to the student's dependency status for financial aid purposes. Whose income is counted in the calculation of the student's family income varies with dependency status. From a financial aid perspective, there are three quite distinct groups of undergraduates:

1) Dependent students (48 percent of all undergraduates)

Undergraduates less than 24 years old are considered dependent for financial aid purposes unless they meet one of the criteria for independence described below, which relatively few do. The vast majority (87 percent) of undergraduates less than 24 years of age were considered financially dependent in 1992–93 (table 2).

Under current financial aid policy, the parents of dependent students are expected to pay for their children's education to the extent they can afford to do so. Therefore, dependent students' eligibility for financial aid takes into account parents' incomes and other aspects of their financial circumstances whether or not the parents actually contribute.

For this analysis, dependent students who came from 4-person families were defined as low income if their parents' income was less than $17,405. The level was lower if the family was smaller and higher if the family was larger. In 1992–93, 12 percent of all dependent undergraduates were from low income families (table 1).

Table 2—Percentage distribution of undergraduates according to dependency status, age, and marital status, by income and dependency status: 1992–93

	All students	Not low income	Low income			
			Total	Dependent	Single independent	Independent with dependents
Total	100.0	100.0	100.0	100.0	100.0	100.0
Dependency status						
Dependent	47.9	51.2	26.2	100.0	(*)	(*)
Single independent	20.5	18.3	32.0	(*)	100.0	(*)
Independent with dependents	31.6	30.5	41.9	(*)	(*)	100.0
Dependency status (less than 24 years old)						
Dependent	86.9	93.9	52.4	100.0	(*)	(*)
Single independent	5.5	2.6	20.1	(*)	100.0	(*)
Independent with dependents	7.6	3.5	27.5	(*)	(*)	100.0
Age						
Less than 24 years	55.1	54.5	50.1	100.0	31.4	33.0
24–29 years	17.1	15.7	25.6	(*)	46.2	26.0
30 years or older	27.8	29.8	24.3	(*)	22.4	41.0
Marital status						
Not married or separated	74.5	72.4	82.2	97.7	100.0	59.3
Married	25.5	27.6	17.8	2.3	(*)	40.7

*Not applicable.

NOTE: Percentages may not sum to 100 due to rounding. Percentages for "all students" include students with missing income data. Therefore, the percentages for all students may be higher or lower than the percentages for low income and not low income students. For example, the percentage of all students less than 24 years old (55.1 percent) is greater than the percentages for both low income students (50.1 percent) and not low income students (54.5 percent).

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

2) Single independent students[6] (20 percent of all undergraduates)

Undergraduates 24 years or older are considered financially independent of their parents for financial aid purposes, regardless of their parents' incomes and whether or not their parents provide them with any financial assistance. In 1992–93, about two-thirds of single independents were at least 24 years old and therefore were considered independent simply because of their age (table 2). For single independent students, "family income" includes only the student's income.

Undergraduates less than 24 years old were considered financially independent of their parents if they were not claimed as a tax exemption by their parents for the 2 years before the beginning of the academic year for which they were applying for financial aid and had at least $4,000 in financial resources; if they were military veterans; if they were wards of the court; or if both parents were deceased and they had no legal guardian.[7] In 1992–93, only 6 percent of all undergraduates less than 24 years old met one of these criteria.

About one-third (31 percent) of all single independents were defined as low income for this analysis (that is, they had incomes of less than $8,858) (table 1). Some of these students may have had low incomes temporarily because they were enrolled in postsecondary education and not working or only working a limited amount. Others may have had low incomes on a longer term basis because they had difficulty finding steady work or a well-paying job (they might have been returning for further education to improve their employment prospects). Low income single independents may or may not have come from disadvantaged backgrounds; their parents' incomes were not considered in assessing their need for financial aid.

3) Independent students with dependents (32 percent of all undergraduates)

Undergraduates with dependents of their own are considered financially independent of their parents regardless of their age. Spouses count as dependents except in the rare instance where a student is married and still claimed as a tax exemption by his or her parents; in such cases, the student would still be considered dependent. In 1992–93, 32 percent of all undergraduates and 8 percent of undergraduates under 24 years of age were independents with dependents (table 2). For purposes of determining eligibility for financial aid, a married independent student's family income includes the student's and his or her spouse's income.

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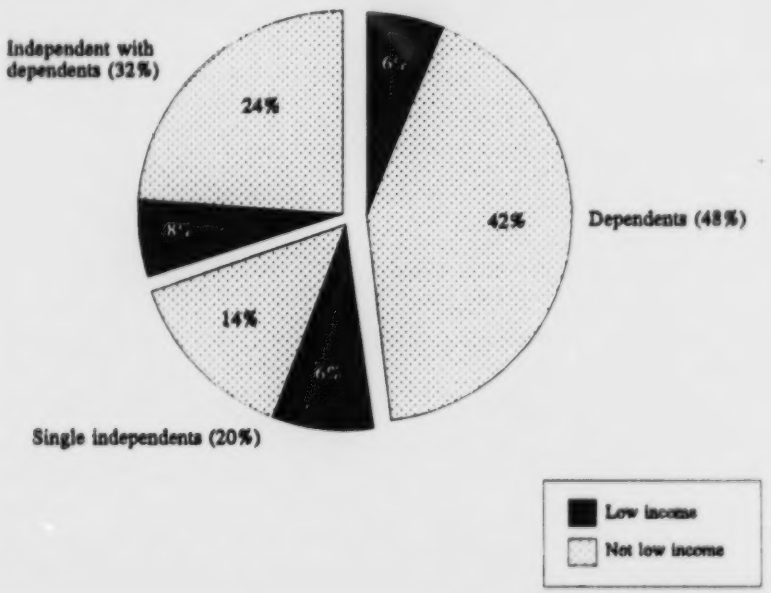
[6]"Single independent" students are more precisely "independents without dependents," and therefore could include students who are married but separated and therefore technically not "single." However, the term "single independents" is used in this report because it is less cumbersome and easier to distinguish from "independents with dependents."

[7]The Higher Education Amendments of 1992 changed the definition of independent, making it more difficult for students less than 24 years old to file financial aid applications as independents. Starting in 1993–94, it was no longer possible for students to apply for financial aid as independents on the grounds they were not claimed as tax exemptions for 2 years and could document resources of more than $4,000 per year.

Twenty-six percent of all independents with dependents were in the low income category (table 1). This group includes a relatively large number of single parents (59 percent of low income independents with dependents were not married or were separated) (table 2). Also likely to be in the group of low income independents with dependents are married students with spouses who were also students and married students with children whose spouses worked only part time or not at all.

To summarize, figure 2 shows the distribution of the entire undergraduate population by income and dependency status in 1992-93. Almost half (48 percent) of all undergraduates were dependent. However, relatively few of them came from low income families. Larger proportions of single independents and independents with dependents were low income. Because spouses are considered dependents for financial aid purposes, many students in the "independents with dependents" category have a spouse who works. Thus, it is not surprising that a greater proportion of single independents, who have only their own incomes to rely upon, would be in the low income category.

Figure 2—Percentage distribution of undergraduates by income and dependency status: 1992-93



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992-93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

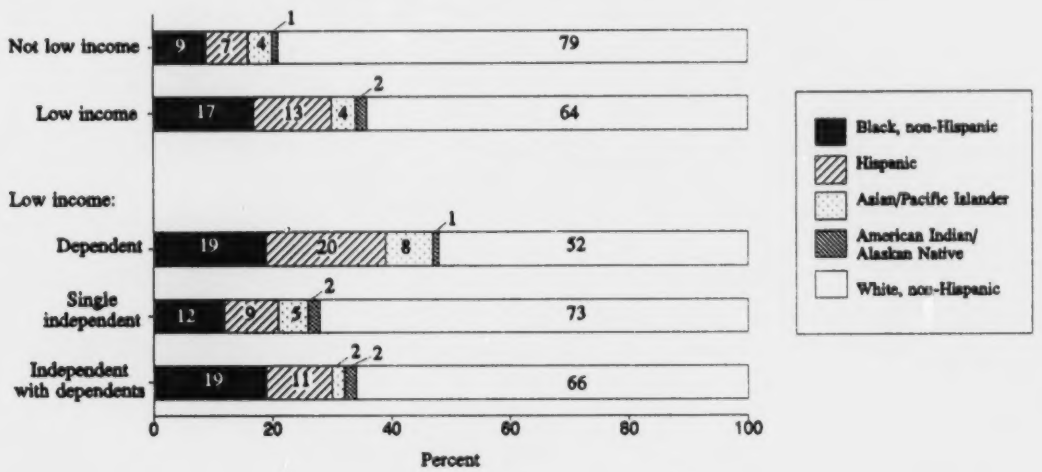
Comparison With Other Students

Demographic Characteristics

As a group, low income students were much more likely than other undergraduates to be minority (36 percent compared with 21 percent) (figure 3 and table 3).[8] Within the low income student population, dependent students were more likely than either type of independent student to belong to a minority group. Among dependent students, 20 percent were Hispanic; 19 percent were black, non-Hispanic; 8 percent were Asian/Pacific Islander; and 1 percent were American Indian/Alaskan Native.

Low income undergraduates also tended to have less well-educated parents than other students. More than one-half (54 percent) of low income undergraduates had parents with only a high school education or less, compared with 43 percent of other undergraduates (figure 4). Because of the close relationship between income and education, it is not surprising that dependent students from low income families had parents with relatively low educational attainment (57 percent had only a high school education or less). Among low income students, single independents had the best educated parents: 45 percent had parents

Figure 3—Percentage distribution of undergraduates according to race-ethnicity, by income and dependency status: 1992-93



NOTE: Percentage may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992-93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

[8]As shown in figure 3 and table 3, 64 percent of low income students and 79 percent of other students were white, non-Hispanic, leaving 36 percent and 21 percent, respectively, minority.

Table 3—Percentage distribution of undergraduates according to selected student and instituional characteristics, by income and dependency status: 1992–93

	All students	Not low income	Low income			
			Total	Dependent	Single independent	Independent with dependents
Total	100.0	100.0	100.0	100.0	100.0	100.0
Gender						
Male	44.5	45.6	39.5	44.0	55.0	25.0
Female	55.5	54.4	60.5	56.0	45.0	75.0
Race–ethnicity						
American Indian/Alaskan Native	0.9	0.8	1.7	1.4	2.0	1.8
Asian/Pacific Islander	4.0	4.0	4.4	7.6	4.6	2.4
Black, non-Hispanic	10.3	8.8	17.0	19.2	12.4	19.1
Hispanic	8.0	7.1	12.5	20.2	8.5	10.7
White, non-Hispanic	76.8	79.3	64.4	51.7	72.6	66.0
Institution type						
Public less-than-4-year	45.4	47.4	39.3	32.5	34.8	47.1
Public 4-year	31.0	30.8	29.3	35.5	38.1	18.8
Private, not-for-profit less-than-4-year	1.6	1.5	2.2	2.1	1.5	2.9
Private, not-for-profit 4-year	14.3	14.6	12.8	18.5	13.1	9.0
Private, for-profit	7.7	5.7	16.3	11.4	12.6	22.2
Degree program						
Associate's	39.0	39.9	36.9	35.9	31.9	41.4
Bachelor's	42.7	43.1	38.1	46.9	49.0	24.3
Undergraduate certificate	13.8	12.4	20.4	13.5	15.0	29.0
Other undergraduate	4.5	4.5	4.5	3.7	4.2	5.3
Highest level expect to complete						
Certificate/award	4.5	4.1	6.6	2.6	4.4	10.8
Associate's degree	7.6	7.5	8.0	5.9	4.9	11.6
Bachelor's degree	31.1	31.2	30.8	32.0	25.0	34.4
Master's, doctoral, or first-professional	56.8	57.2	54.7	59.5	65.7	43.3
Attendance status—first term enrolled in 1992–93						
Full-time	52.5	49.0	63.9	72.8	66.0	56.8
Part-time, half-time or more	21.0	21.0	21.5	17.7	20.5	24.7
Part-time, less than half-time	26.5	30.1	14.6	9.5	13.6	18.5
Attendance pattern						
Full-time, full-year	32.8	31.6	34.9	44.2	37.9	26.8
Full-time, part-year	13.4	11.5	21.8	20.6	20.5	23.4
Part-time, full-year	25.6	26.7	21.1	17.7	20.0	24.1
Part-time, part-year	28.1	30.2	22.2	17.5	21.6	25.6
Delay in postsecondary enrollment						
No delay	57.3	61.1	45.4	66.8	43.2	32.1
1 year	12.4	11.1	14.3	18.9	12.5	12.6
2–4 years	10.9	9.0	15.5	13.6	17.0	15.6
5 years or more	19.4	18.8	24.8	0.7	27.3	39.6

Table 3—Percentage distribution of undergraduates according to selected student and institutional characteristics, by income and dependency status: 1992–93—Continued

	All students	Not low income	Low income			
			Total	Dependent	Single independent	Independent with dependents
Hours worked per week while enrolled						
None	20.6	18.0	32.8	27.7	24.7	41.6
1–14	9.7	9.7	9.6	12.0	10.9	7.3
15–24	18.0	17.7	19.9	26.3	23.5	13.6
25 or more	51.6	54.6	37.7	34.0	40.9	37.5
Highest education level of parents						
High school or less	44.7	42.8	54.2	56.7	45.1	59.4
Some college, less than a bachelor's	19.8	19.9	19.4	19.3	19.0	19.7
Bachelor's degree	19.3	20.1	15.8	16.6	19.8	12.2
Advanced degree	16.2	17.3	10.7	7.5	16.1	8.7

NOTE: Percentages may not sum to 100 due to rounding. Percentages for "all students" include students with missing income data. Therefore, the percentages for all students may be higher or lower than the percentages for both low income and not low income students.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

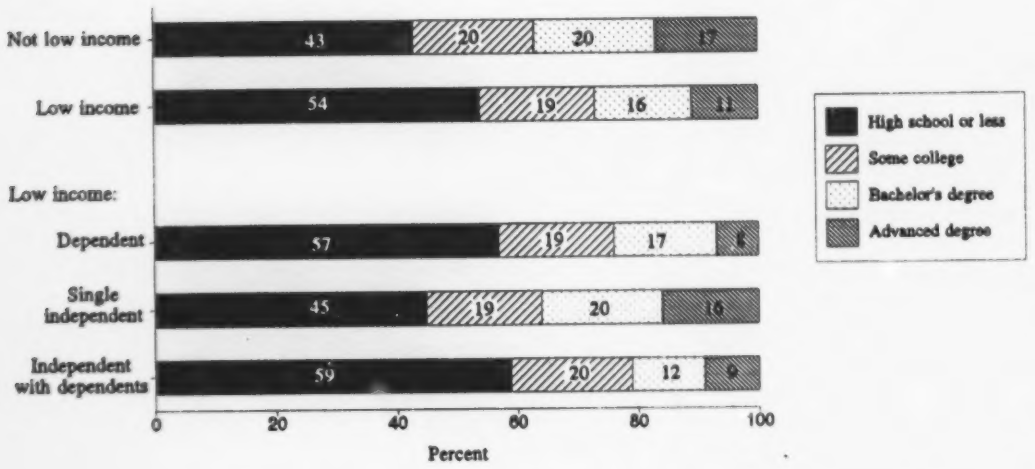
with a high school education or less, a proportion similar to that of undergraduates who were not low income. As indicated earlier, low income single independents may be poor because they are students, but they do not necessarily come from disadvantaged backgrounds. Low income independents with dependents tended to have less well-educated parents than single independents (59 percent had parents with only a high school education) (table 3). They may have been more likely to come from disadvantaged backgrounds, but another possible explanation or contributing factor may be that low income independents with dependents were more likely than low income single independents to be 30 years or older (table 2), increasing the likelihood that their parents belonged to a generation less likely to have attended college.

Enrollment Patterns

Low income undergraduates were about as likely as other undergraduates to enroll in public 4-year institutions (29 percent and 31 percent, respectively) and private, not-for-profit 4-year institutions (13 percent and 15 percent, respectively) (figure 5 and table 3). However, low income students were much more likely than other students to enroll in private, for-profit institutions, and were somewhat less likely to attend public less-than-4-year institutions.

Low income undergraduates were more likely than other undergraduates to enroll full time in their first term in 1992–93 and to enroll full time for only part of the year. This pattern reflects, in part, low income students' greater numbers at private, for-profit institutions, which tend to have shorter, full-time programs. However, greater full-time

Figure 4—Percentage distribution of undergraduates according to parents' education, by income and dependency status: 1992–93



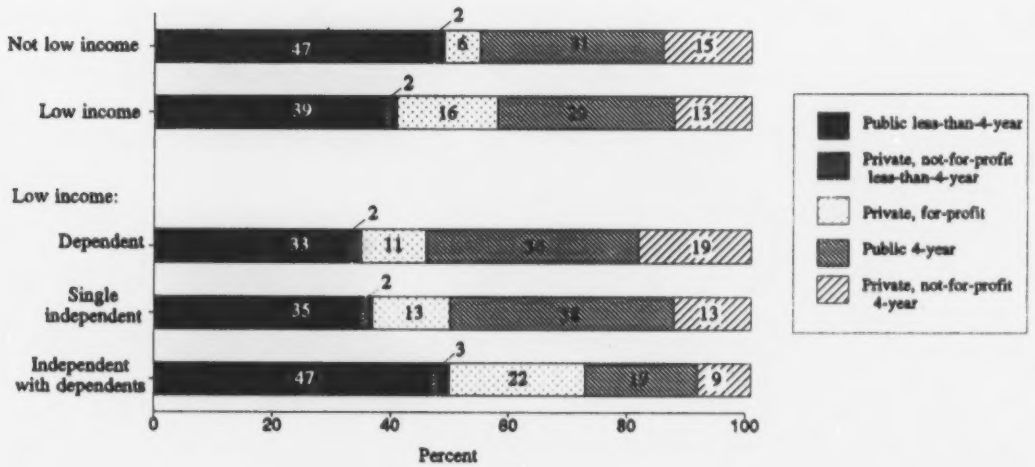
NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

attendance may also reflect the fact that, for independent students, attending full time makes it more likely their income will be low because they have less time to work.

Low income students differed from their non low income counterparts in their choice of degree program, with low income students being more likely to enroll in a certificate program and less likely to enroll in a bachelor's degree program. However, despite the differences in where they enrolled and their immediate academic goals, low income and other undergraduates had similar long-term academic goals, with similar proportions in each group aspiring eventually to associate's, bachelor's, and advanced degrees.

Figure 5—Percentage distribution of undergraduates according to type of institution, by income and dependency status: 1992–93



NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Considerations in Choosing an Institution

In 1989–90, 76 percent of low income undergraduates reported that the fact that an institution offered the course of study they wanted was a very important consideration in their choice of institution.[9] They cited this factor far more frequently than any other (table 4). However, financial considerations were important as well. Forty-five percent of low income students reported that obtaining the financial aid they needed was a very important consideration (compared with only 20 percent of other students). Low income students were also more likely than other students to report that other factors that had financial implications (lower tuition and other expenses, a good reputation for placement, and being able to finish in a shorter time) were very important.

Although students were not asked in NPSAS:93 why they chose the institution in which they enrolled, there is some evidence of efforts on the part of low income students to try to reduce costs. For example, low income students at 4-year institutions were more likely

Table 4—Percentage of undergraduates who rated various reasons for selecting the institution attended as "very important," by income group and dependency status: 1989–90

	Offered course of study wanted	Could go to school and work	Could live at home	School had good reputation	School was close to home	Tuition and other expenses were less	School had good reputation for placement	Could finish in shorter time	Obtained financial aid needed
Total	72.6	51.3	50.5	50.4	43.4	36.8	36.1	29.2	24.4
				Low income					
Total	75.9	48.8	50.6	52.6	44.8	42.2	41.2	37.1	45.3
Dependency status									
Dependent	71.6	43.2	39.7	51.9	36.6	40.7	45.8	26.6	52.7
Single independent	80.9	49.0	64.1	53.4	52.9	41.7	40.4	45.6	47.7
Independent with dependents	74.8	52.7	46.6	52.4	43.6	43.9	38.4	37.4	37.9
				Not low income					
Total	71.9	51.8	50.4	49.9	43.1	35.5	34.9	27.1	19.5
Dependency status									
Dependent	66.9	38.9	34.4	51.8	34.3	35.7	40.6	21.1	20.3
Single independent	80.0	63.8	75.9	48.0	56.2	34.3	27.6	36.0	19.5
Independent with dependents	74.7	73.4	59.2	47.2	49.4	36.7	28.8	31.6	17.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1989–90 National Postsecondary Student Aid Study (NPSAS:90), Undergraduate Data Analysis System.

[9]The 1989–90 data are reported here because these questions were not asked in NPSAS:93. The BPS students whose persistence and attainment are examined later were part of NPSAS:90.

than other undergraduates (24 percent compared with 20 percent) to live with their parents or relatives. This can be an important strategy for reducing housing and, possibly, transportation costs (table 5). Based on tuition and fees paid by students who attended full time, full year, low income undergraduates appear to be sensitive to tuition charges. Except at public less-than-4-year institutions, low income undergraduates enrolled full time, full year paid a lower average amount for tuition and fees than their counterparts who were not low income at the same type of institution (table 6). This suggests that low income students may be choosing lower cost rather than high-cost private institutions and less expensive public institutions over more expensive ones as a way of keeping down their educational costs.

Table 5—Percentage distribution of undergraduates according to local residence, by institution type and income group: 1992–93

	On campus	Off campus, with parents or relatives	Other off campus
		Total	
Total	12.8	28.1	59.0
Income group			
Low income	10.7	29.4	59.9
Not low income	13.5	27.3	59.2
		Less-than-4-year*	
Total	2.5	34.2	63.2
Income group			
Low income	3.2	33.4	63.4
Not low income	2.4	33.6	64.0
		4-year	
Total	25.2	21.1	53.8
Income group			
Low income	21.1	24.0	55.0
Not low income	26.8	19.9	53.3
		Private, for-profit	
Total	3.1	32.5	64.4
Income group			
Low income	2.8	33.3	63.8
Not low income	3.3	31.3	65.4

*Excluding private, for-profit institutions. Most private, for-profit institutions are less-than-4-year, but they are distinct from public and private, not-for-profit less-than-4-year institutions.

NOTE: Percentages may not add to 100 due to rounding. Totals include students with missing income data. Therefore, the percentages for totals may be higher or lower than the percentages for both low income and not low income students.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Table 6—Average tuition for undergraduates attending full time, full year, by type of institution and income group: 1992–93

	Public less-than-4-year	Public 4-year	Private, not-for-profit 4-year	Private, for-profit
Total	$1,160	$2,987	$11,194	$5,823
Income group				
Low income	1,169	2,601	8,784	5,332
Not low income	1,171	3,033	11,634	6,164

NOTE: Totals include students with missing income data. Therefore, the amounts for all students may be greater or less than the amounts for both low income and not low income students.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Financial Need

Method for Assessing Financial Need

To assess a student's need for financial aid, a financial aid officer starts by establishing an appropriate budget that takes into account direct educational expenses and reasonable living expenses. Direct educational expenses include tuition, fees, books, and supplies. Living expenses include room and board if living on campus, or rent and food if living off campus; personal expenses; transportation; and any special items a student requires, such as child care or special equipment needed because of a handicapping condition.

What the family is expected to pay is calculated using a formula that takes into account family income and assets, the size of the family, and the number of other family members enrolled in postsecondary education. This calculated amount becomes the "expected family contribution" (EFC) and is independent of where the student chooses to enroll. In other words, the EFC is the same regardless of whether the student chooses an institution with a tuition of $1,500 or $15,000. The student is eligible for the amount of financial aid needed to make up the difference between the EFC and the budget, although there is no guarantee that the financial aid funds will be available to meet the need fully.

Over the years, the methodology used to calculate the EFC has changed many times as policymakers have attempted to achieve both simplicity and fairness and to ration limited funds. Each adjustment to the formula has changed who is eligible for financial aid and how much. The debate over whose income and assets should be included and how they should be treated continues. Some issues that still exist include the age of the student at which the parents' income should no longer count; how a noncustodial parent's or stepparent's income should be treated when parents are divorced; what assets should be sheltered; what percentage of their assets parents should be expected to contribute; and how much the student should be expected to earn.[10]

In 1992-93, there were minimum EFCs (although these have since been eliminated). The minimum EFC for dependent students was $700 for the first year and $900 afterwards; for single independent students, it was $1,200. There was no minimum EFC for independent students with dependents.

Figures 6-8 show the relationship between the average budgets for full-time, full-year students at various types of institutions and the average EFCs at each income level in 1992-93. The difference between the budgets and the EFCs was the average amount of financial aid for which students were eligible at each income level.

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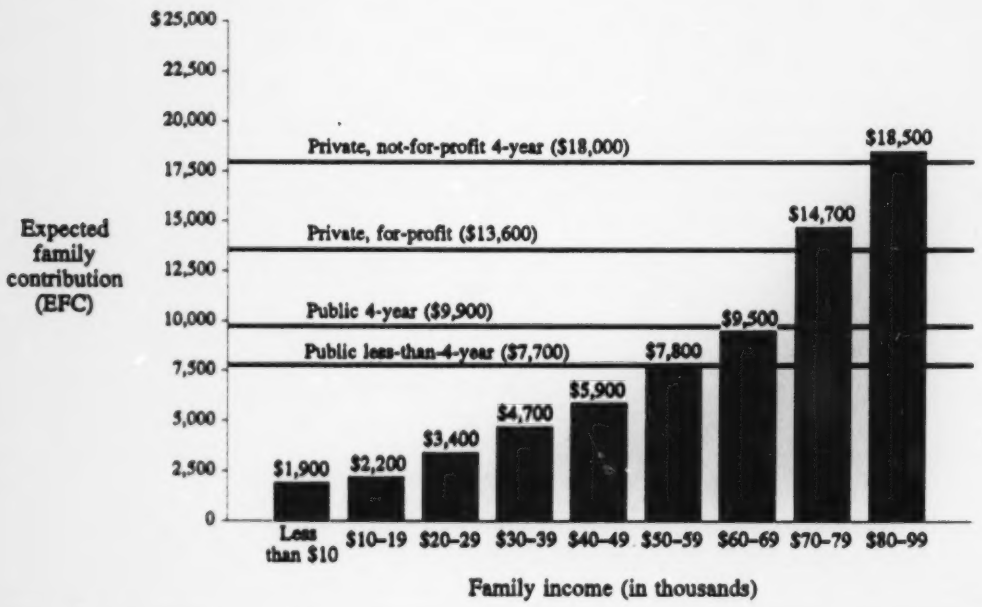
[10]For comments on the current state of need analysis, see National Association of Student Financial Administrators, *Need Analysis: Does it Still Work?* (Washington, D.C.), June 1995.

On average, families with incomes under $50,000 would have been eligible for some financial aid to support a dependent full-time, full-year undergraduate at an average-cost postsecondary institution of any type in 1992–93 (figure 6). With higher incomes, families were eligible for financial aid only at the more costly institutions. Full-time, full-year single independent students with incomes under about $20,000 would have been eligible for some financial aid at an average-cost postsecondary institution of any type (figure 7). Independent students with dependents of their own had the lowest EFCs, on average, because they had no minimum EFC. With incomes under $50,000 they would have been eligible for financial aid to meet the average costs of attending any type of institution full time, full year (figure 8).

The discussion of costs and financial aid that follows is limited to low income students who attended full time, full year because of the difficulty of making comparisons among students whose attendance patterns vary as widely as those in the group of students who attend part time and/or part year. Forty-four percent of low income dependent students attended full time, full year, as did 38 percent of low income single independents and 27 percent of independents with dependents (table 3). The discussion is also limited to undergraduates who attended only one institution, because of the need to have a consistent picture of aid and costs. One percent of all full-time, full-year undergraduates attended more than one institution during the 1992–93 academic year.[11]

[11]U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

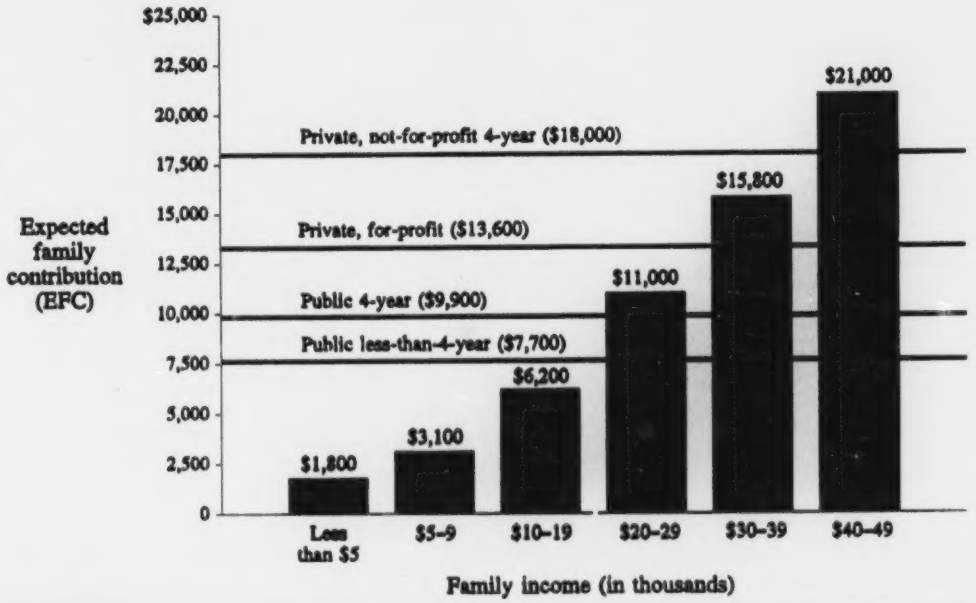
Figure 6—Average expected family contribution for dependent students, by family income: 1992–93



NOTE: Too little financial aid-related information was available for students with family incomes of $100,000 or more to estimate an EFC reliably. The horizontal lines on the figure represent the average student budgets for full-time, full-year students at the indicated type of institution.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

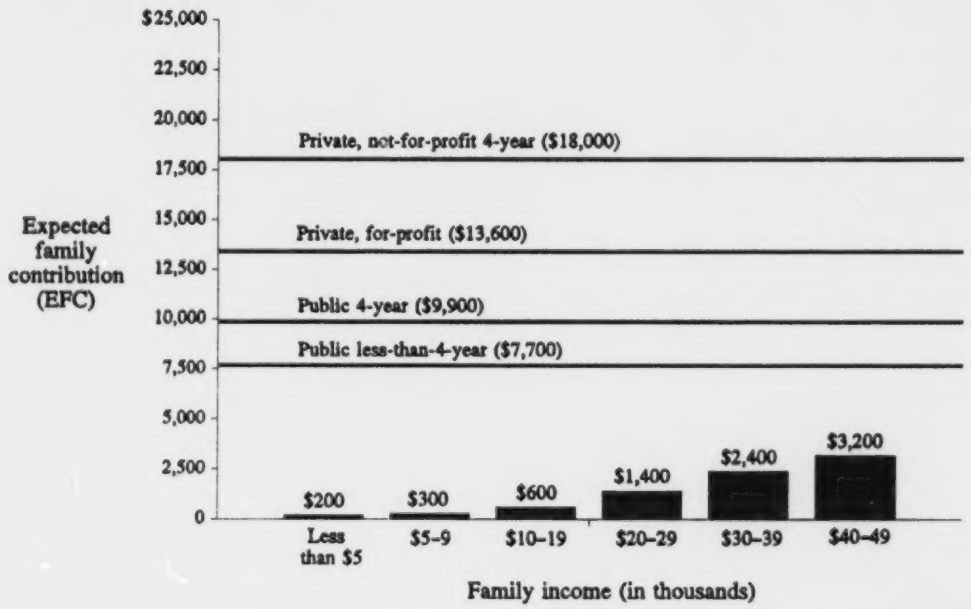
Figure 7—Average expected family contribution for single independent students, by family income: 1992–93



NOTE: Too little financial aid-related information was available for students with family incomes of $50,000 or more to estimate an EFC reliably. The horizontal lines on the figure represent the average student budgets for full-time, full-year students at the indicated type of institution.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Figure 8—Average expected family contribution for independent students with dependents, by family income: 1992–93



NOTE: Too little financial aid-related information was available for students with family incomes of $50,000 or more to estimate an EFC reliably. The horizontal lines on the figure represent the average student budgets for full-time, full-year students at the indicated type of institution.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Budgets and Costs

Turning specifically to low income students attending full time, full year, average budgets ranged from $8,100 at public less-than-4-year institutions to $15,500 at private, not-for-profit 4-year institutions (table 7).[12] For dependent full-time, full-year low income students, the average budget was about the same as the average student-reported costs at each type of institution, but for their independent counterparts (both single independents and independents with dependents), the average student-reported cost tended to be higher than the average budget.[13]

[12]It should be pointed out that only 30 percent of low income students attending private, for-profit institutions were enrolled full time for a full year; most were enrolled in programs lasting less than 1 year. Thus, the majority of students at private, for-profit institutions would not be paying tuition as high as $13,000 for their programs. U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Data Analysis System.

[13]All differences for independent students were statistically significant except for single independent students at private, for-profit institutions.

Table 7—Average cost, budget, expected family contribution, financial need, and percentage with need for low income undergraduates attending full time, full year, by dependency status and type of institution: 1992–93

	Average				
	Attendance-adjusted total costs[1]	Student budget[2]	Expected family contribution[3]	Financial need[4]	Percent with need
			Total		
Total	$12,631	$10,916	$1,607	$9,421	99.4
Institution type					
Public less-than-4-year	10,085	8,106	1,067	7,035	100.0
Public 4-year	11,414	9,696	1,805	8,004	99.2
Private, not-for-profit less-than-4-year	12,078	10,061	999	9,062	100.0
Private, not-for-profit 4-year	17,256	15,478	2,148	13,594	98.8
Private, for-profit	14,068	12,929	1,181	11,811	99.7
			Dependent		
Total	11,347	10,957	1,924	9,270	99.3
Institution type					
Public less-than-4-year	7,230	7,156	1,319	5,837	100.0
Public 4-year	9,876	9,316	2,044	7,515	99.1
Private, not-for-profit less-than-4-year	9,105	9,303	1,610	7,693	100.0
Private, not-for-profit 4-year	16,063	15,452	2,140	13,743	99.2
Private, for-profit	12,144	12,921	1,613	11,308	100.0
			Single independent		
Total	12,627	11,224	2,493	8,834	98.8
Institution type					
Public less-than-4-year	9,438	8,506	2,194	6,304	100.0
Public 4-year	11,458	9,949	2,370	7,637	98.9
Private, not-for-profit less-than-4-year	—	—	—	—	—
Private, not-for-profit 4-year	18,116	16,120	3,105	13,207	97.5
Private, for-profit	13,906	13,321	2,583	10,995	99.0
			Independent with dependents		
Total	13,941	10,543	337	10,201	100.0
Institution type					
Public less-than-4-year	11,740	8,277	273	8,004	100.0
Public 4-year	13,940	9,871	367	9,504	100.0
Private, not-for-profit less-than-4-year	14,311	10,682	261	10,420	100.0
Private, not-for-profit 4-year	18,584	14,393	466	13,928	100.0
Private, for-profit	14,767	12,735	339	12,383	100.0

—Sample size was too small for a reliable estimate.

[1]Student-reported annual living expenses adjusted for months enrolled.
[2]Budget established by institution.
[3]Amount family expected to pay.
[4]Student budget minus expected family contribution. In this table, the difference between the average student budget and the average expected family contribution is not exactly equal to the average financial need because of missing data for each variable.

NOTE: Averages computed including zero values.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Expected Family Contributions

The average EFC for low income students who attended full time, full year was $1,600 in 1992–93 (table 7). Because the EFC is independent of the cost of attending, the differences in average EFCs across institution types reflect the differences in the income, family size, and dependency status of the students who attended each type of institution.[14] Among low income students attending full time, full year, the average EFC was greatest ($2,500) for single independent students, who are expected to contribute a substantial part of their income and savings to supporting their educational costs. The average EFCs for dependent students and independent students with dependents were about $1,900 and $300, respectively.

Financial Need

A student's need for financial aid is the difference between the institutionally determined budget for the student and the student's EFC. Virtually all low income students enrolling full time, full year (99 percent) had financial need in 1992–93 (table 7). The average need (including the few with zero need) was $9,400. As would be expected given cost differences, the average need for low income students varied by type of institution, ranging from $7,000 at public less-than-4-year institutions to $13,600 at private, not-for-profit 4-year institutions.

Among low income undergraduates enrolling full time, full year, dependent and single independent students had similar financial need, on average ($9,300 and $8,800, respectively). The average financial need of independent students with dependents was somewhat greater ($10,200). This reflects the fact that they had no minimum EFC and may also be related to the types of institutions they attended. Independents with dependents had a greater propensity than other students to attend the higher cost private, for-profit institutions; however, they were also more likely to attend the less costly public, less-than-4-year institutions (see table 3).

[14]Dependency status is relevant because dependents, single independents, and independents with dependents have different minimum contributions and are subject to different rules about how their income and assets are treated.

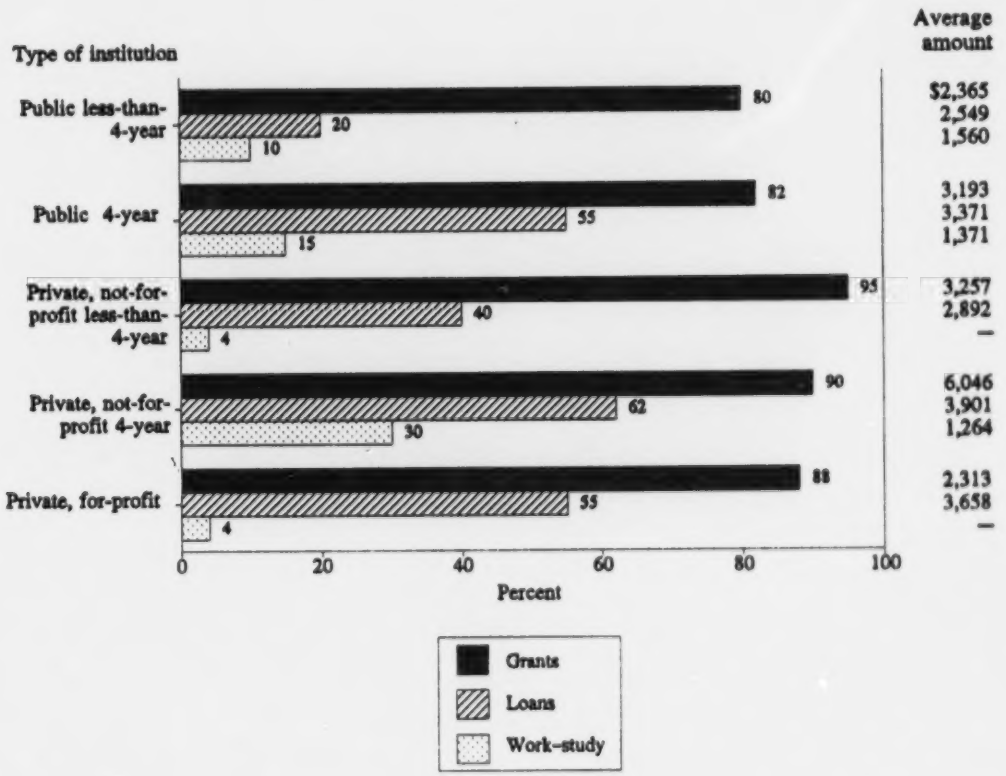
Financial Aid

The vast majority (88 percent) of low income students who enrolled full time, full year in 1992–93 received some type of financial aid (table 8). The average amount aided students received varied by institution type, ranging from $3,400 at public less-than-4-year institutions to $9,300 at private, not-for-profit 4-year institutions.

Types of Aid

Grants are the foundation of student financial aid for low income students. Depending on the type of institution, between 80 percent and 95 percent of full-time, full-year low income students received grants (figure 9 and table 8). The average amount received in the

Figure 9—Percentage of full-time, full-year low income undergraduates receiving aid and average amount received by aided students, by type of institution: 1992–93



—Sample size was too small for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Table 8—Percentage of low income undergraduates attending full time, full year who received various types of financial aid and the average amounts received by aided students, by dependency status and type of institution: 1992–93

	Total aid		Grants		Loans		Work-study	
	Percent	Average amount	Percent	Average amount	Percent	Average amount	Percent	Average amount
Total								
Total	88.1	$5,764	84.0	$3,485	48.3	$3,465	15.0	$1,388
Institution type								
Public less-than-4-year	83.5	3,352	80.2	2,365	20.2	2,549	10.3	1,560
Public 4-year	86.6	5,638	81.6	3,193	54.9	3,371	14.8	1,371
Private, not-for-profit less-than-4-year	97.0	4,802	95.1	3,257	39.7	2,892	3.7	—
Private, not-for-profit 4-year	92.8	9,318	89.7	6,046	62.4	3,901	30.0	1,264
Private, for-profit	92.3	4,745	88.4	2,313	54.9	3,658	3.6	—
Dependent								
Total	89.1	6,188	85.8	4,126	48.8	2,957	20.5	1,315
Institution type								
Public less-than-4-year	83.1	2,831	81.4	2,242	11.7	—	15.1	—
Public 4-year	86.8	5,181	82.7	3,302	50.3	2,722	16.1	1,341
Private, not-for-profit less-than-4-year	99.3	4,710	99.0	3,058	38.4	—	3.9	—
Private, not-for-profit 4-year	93.5	9,781	90.6	6,902	62.1	3,279	37.3	1,224
Private, for-profit	96.7	5,267	93.5	2,408	65.7	3,336	1.9	—
Single independent								
Total	88.2	5,944	82.9	3,319	51.5	3,824	12.7	1,365
Institution type								
Public less-than-4-year	82.6	3,094	78.0	2,085	20.7	—	7.0	—
Public 4-year	87.9	5,764	81.6	3,049	57.9	3,671	12.2	1,359
Private, not-for-profit less-than-4-year	—	—	—	—	—	—	—	—
Private, not-for-profit 4-year	92.6	9,385	88.4	5,654	62.7	4,547	26.3	1,313
Private, for-profit	90.9	5,271	87.6	2,258	58.5	4,242	2.2	—
Independent with dependents								
Total	87.0	5,129	83.4	2,996	44.3	3,581	12.0	1,540
Institution type								
Public less-than-4-year	84.3	3,733	81.0	2,585	23.7	2,938	10.3	—
Public 4-year	84.1	6,194	79.8	3,273	57.2	3,778	17.3	1,433
Private, not-for-profit less-than-4-year	94.3	5,111	94.1	3,530	41.9	—	5.2	—
Private, not-for-profit 4-year	91.5	8,058	89.9	4,664	62.5	4,227	19.1	1,332
Private, for-profit	91.5	4,308	87.1	2,308	49.6	3,450	4.9	—

—Sample size was too small for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

form of grants was in the $2,300–$3,300 range except at private, not-for-profit 4-year institutions, where it was $6,000 (table 8).

Loans were used less frequently, with 48 percent of low income students borrowing. Students at public less-than-4-year institutions were the least likely to borrow (20 percent). Between 40 percent and 62 percent borrowed in other types of institutions. The average loan ranged from $2,500 to $3,900, depending on the type of institution. The differences reflect, at least in part, higher borrowing limits for upper-division students as well as cost differences among institution types.

Work-study aid was far more common at private, not-for-profit 4-year institutions than at other types of institutions. Thirty percent of full-time, full-year low income undergraduates participated in work study in that type of institution in contrast to 15 percent or less at other types of institutions. However, the average amount earned by participants was roughly similar at each type of institution ($1,300 to $1,600).

Receipt of some types of aid varied by dependency status. Similar percentages of dependents, single independents, and independents with dependents received grants, but single independents were more likely than independents with dependents to borrow. Dependent students were more likely than either type of independent student to participate in work-study programs.

Sources of Aid

The federal government was the major source of all types of financial aid. With respect to grants, the Pell grant program was the most important. Overall, 84 percent of full-time, full-year low income undergraduates received some type of grant aid; 78 percent received federal grant aid; and 76 percent received a Pell grant (tables 8, 9, and 10). The average Pell grant was $2,100 (table 10), just $300 less than the 1992–93 maximum allowable award of $2,400.[15]

Full-time, full-year low income students at private, not-for-profit 4-year institutions received larger amounts of federal grant aid ($2,800, on average) than their counterparts at other types of institutions. This was partly due to slightly larger Pell amounts, but also because they were considerably more likely than their counterparts in other types of institutions to receive Supplementary Education Opportunity Grants (SEOGs) (table 10).[16]

Participation in loan programs varied considerably by type of institution. However, at each type of institution, almost all of the students with loans had federal loans, and most of these students had Stafford loans (tables 8, 9, and 11). About one out of five full-time,

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[15]The maximum Pell grant was also limited by educational costs. Students at low-tuition public institutions were not always eligible for the maximum $2,400.

[16]The difference in the average Pell grant at private, not-for-profit 4-year and less-than-4-year institutions was not statistically significant.

Table 9—Percentage of low income undergraduates attending full time, full year who received financial aid from various sources and the average amounts received by aided students, by dependency status and type of institution: 1992–93

	Any federal aid		Federal grant		Federal loan		Any state aid		Any institutional aid	
	Percent	Average amount	Percent	Average amount	Percent	Average amount	Percent	Average amount	Percent	Average amount
Total										
Total	82.6	$4,453	77.6	$2,339	47.6	$3,408	33.5	$1,586	24.8	$2,689
Institution type										
Public less-than-4-year	76.6	2,872	75.5	2,026	19.9	2,568	33.0	915	11.2	840
Public 4-year	80.9	4,699	74.6	2,389	54.1	3,330	36.5	1,458	25.4	1,440
Private, not-for-profit less-than-4-year	95.3	3,817	95.0	2,371	39.7	2,871	38.4	1,645	16.1	—
Private, not-for-profit 4-year	86.3	5,718	78.0	2,773	61.1	3,772	43.5	2,351	51.7	4,647
Private, for-profit	91.0	4,328	87.2	2,089	54.6	3,622	10.2	1,874	7.5	1,655
Dependent										
Total	84.7	4,332	78.9	2,404	48.2	2,905	36.1	1,837	32.8	3,146
Institution type										
Public less-than-4-year	74.6	2,378	70.0	1,840	11.7	—	29.1	—	18.9	—
Public 4-year	82.9	4,084	76.9	2,329	49.7	2,702	36.6	1,563	28.8	1,411
Private, not-for-profit less-than-4-year	99.3	3,774	99.0	2,427	38.4	—	43.6	—	15.0	—
Private, not-for-profit 4-year	89.0	5,497	82.0	2,863	61.1	3,154	44.7	2,519	55.3	5,160
Private, for-profit	96.2	4,861	93.1	2,128	65.2	3,359	11.9	—	6.8	—
Single independent										
Total	80.5	4,707	73.9	2,284	50.6	3,753	32.2	1,599	24.7	2,686
Institution type										
Public less-than-4-year	73.4	2,523	73.0	1,793	19.7	—	25.9	920	13.0	—
Public 4-year	80.4	4,953	72.7	2,366	57.1	3,614	35.4	1,437	21.8	1,557
Private, not-for-profit less-than-4-year	—	—	—	—	—	—	—	—	—	—
Private, not-for-profit 4-year	82.6	5,996	71.3	2,704	61.0	4,361	42.2	2,359	53.5	4,564
Private, for-profit	89.3	4,847	84.9	2,091	58.5	4,225	10.6	—	8.2	—
Independent with dependents										
Total	82.8	4,312	80.1	2,328	43.9	3,539	32.5	1,289	16.7	1,786
Institution type										
Public less-than-4-year	79.5	3,273	79.5	2,229	23.7	2,938	39.0	880	6.7	—
Public 4-year	78.4	5,321	74.4	2,536	56.2	3,739	38.4	1,324	26.4	1,316
Private, not-for-profit less-than-4-year	94.1	3,877	93.9	2,396	41.9	—	39.1	—	16.9	—
Private, not-for-profit 4-year	86.3	5,789	80.3	2,662	61.4	4,203	43.1	1,921	40.0	3,140
Private, for-profit	90.1	3,889	86.5	2,075	49.2	3,375	9.4	1,870	7.4	—

—Sample size was too small for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Table 10—Percentage of low income undergraduates attending full time, full year who received various types of grants and the average amounts received by aided students, by dependency status and type of institution: 1992–93

	Any federal		Pell		SEOG		State		Institutional	
	Percent	Average amount	Percent	Average amount	Percent	Average amount	Percent	Average amount	Percent	Average amount
Total										
Total	77.6	$2,339	76.1	$2,111	23.1	$781	29.7	$1,486	21.9	$2,665
Institution type										
Public less-than-4-year	75.5	2,026	73.2	1,932	17.1	432	27.8	836	11.2	830
Public 4-year	74.6	2,389	74.1	2,188	20.4	717	33.3	1,338	21.4	1,364
Private, not-for-profit less-than-4-year	95.0	2,371	94.5	2,241	19.1	—	29.8	—	14.3	—
Private, not-for-profit 4-year	78.0	2,773	75.2	2,247	36.4	1,158	39.0	2,264	47.9	4,596
Private, for-profit	87.2	2,089	85.9	1,967	22.9	560	8.2	1,552	5.2	1,077
Dependent										
Total	78.9	2,404	77.6	2,117	24.7	955	33.7	1,749	29.7	3,197
Institution type										
Public less-than-4-year	70.0	1,840	68.3	1,801	14.4	—	27.5	—	18.9	—
Public 4-year	76.9	2,329	76.5	2,136	18.6	803	35.3	1,477	24.6	1,366
Private, not-for-profit less-than-4-year	99.0	2,427	98.8	2,209	23.4	—	30.0	—	9.9	—
Private, not-for-profit 4-year	82.0	2,863	79.6	2,243	41.9	1,268	41.4	2,453	51.9	5,167
Private, for-profit	93.1	2,128	91.0	2,042	21.1	574	8.1	—	6.5	—
Single independent										
Total	73.9	2,284	72.3	2,100	19.2	723	27.8	1,458	22.2	2,579
Institution type										
Public less-than-4-year	73.0	1,793	70.4	1,790	12.4	—	19.5	—	13.0	—
Public 4-year	72.7	2,366	72.3	2,206	17.3	634	31.6	1,297	18.9	1,420
Private, not-for-profit less-than-4-year	—	—	—	—	—	—	—	—	—	—
Private, not-for-profit 4-year	71.3	2,704	67.6	2,233	30.3	1,027	36.7	2,170	48.3	4,466
Private, for-profit	84.9	2,091	83.2	1,956	19.6	678	9.0	—	7.8	—
Independent with dependents										
Total	80.1	2,328	78.6	2,117	25.7	658	27.8	1,192	13.8	1,658
Institution type										
Public less-than-4-year	79.5	2,229	77.0	2,063	21.1	508	33.0	794	6.6	—
Public 4-year	74.4	2,536	73.7	2,248	29.1	716	33.3	1,161	20.7	1,266
Private, not-for-profit less-than-4-year	93.9	2,396	93.9	2,332	14.9	—	31.8	—	16.9	—
Private, not-for-profit 4-year	80.3	2,662	78.1	2,275	34.0	1,043	37.6	1,928	37.4	2,992
Private, for-profit	86.5	2,075	85.6	1,948	25.0	511	7.9	—	3.6	—

—Sample size was too small for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Table 11—Percentage of low income undergraduates attending full time, full year who obtained various types of loans and the average amounts borrowed by students who borrowed, by dependency status and type of institution: 1992–93

	Any federal		Stafford		SLS		Perkins	
	Percent	Average amount	Percent	Average amount	Percent	Average amount	Percent	Average amount
Total								
Total	47.6	$3,408	45.1	$2,850	6.8	$2,753	10.4	$1,316
Institution type								
Public less-than-4-year	19.9	2,568	19.1	2,229	2.4	—	2.3	—
Public 4-year	54.1	3,330	50.5	2,906	6.5	2,618	12.1	1,255
Private, not-for-profit less-than-4-year	39.7	2,871	38.2	2,344	6.5	—	1.8	—
Private, not-for-profit 4-year	61.1	3,772	57.4	2,949	9.2	3,133	21.1	1,379
Private, for-profit	54.6	3,622	54.0	2,945	11.4	2,580	4.0	1,817
Dependent								
Total	48.2	2,905	45.3	2,644	1.2	—	12.6	1,307
Institution type								
Public less-than-4-year	11.7	—	11.7	—	0.0	—	0.1	—
Public 4-year	49.7	2,702	46.3	2,572	1.0	—	10.7	1,125
Private, not-for-profit less-than-4-year	38.4	—	38.4	—	0.4	—	5.1	—
Private, not-for-profit 4-year	61.1	3,154	56.7	2,684	1.5	—	25.1	1,443
Private, for-profit	65.2	3,359	65.2	3,145	4.1	—	4.8	—
Single independent								
Total	50.6	3,753	47.9	2,993	10.9	2,766	10.6	1,324
Institution type								
Public less-than-4-year	19.7	—	17.7	—	1.4	—	2.3	—
Public 4-year	57.1	3,614	53.9	3,011	10.6	2,651	11.0	1,336
Private, not-for-profit less-than-4-year	—	—	—	—	—	—	—	—
Private, not-for-profit 4-year	61.0	4,361	57.7	3,181	15.7	3,055	20.4	1,287
Private, for-profit	58.5	4,225	57.2	3,079	19.3	2,881	6.9	—
Independent with dependents								
Total	43.9	3,539	41.7	2,900	8.0	2,769	8.0	1,317
Institution type								
Public less-than-4-year	23.7	2,938	23.2	2,345	4.0	—	3.4	—
Public 4-year	56.2	3,739	51.1	3,214	8.3	2,551	16.6	1,298
Private, not-for-profit less-than-4-year	41.9	—	38.7	—	3.3	—	0.0	—
Private, not-for-profit 4-year	61.4	4,203	58.7	3,155	16.1	3,328	12.7	1,341
Private, for-profit	49.2	3,375	48.8	2,781	9.8	2,362	2.3	—

—Sample size was too small for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

full-year low income students at private, not-for-profit 4-year institutions took out a Perkins loan, a much greater proportion than at any other type of institution (table 10).

It should be noted that students' access to federal campus-based aid (SEOG, Perkins, and College Work-Study programs) varies from one institution to another for reasons other than student financial need. The allocation of campus-based aid to institutions has a historical basis. Not all institutions participate, and institutions have different amounts to distribute. Older institutions that have been participating for a long time have the largest amounts.

State aid (which is primarily grant aid) was another important source of aid for low income students, with 34 percent of those who attended full time, full year receiving an average of $1,600 (table 9). State aid was less available to those at private, for-profit institutions than at other types of institutions (10 percent received state aid compared with one-third or more elsewhere). Many state programs do not provide awards to students in private, for-profit institutions.

Institutional aid was an important source of aid for full-time, full-year low income students at private, not-for-profit 4-year institutions: 52 percent received institutional aid averaging $4,600 (table 9). Their counterparts at other types of institutions were much less likely to receive this type of aid. Public institutions usually have relatively little need-based aid to distribute. In many states, most need-based aid at public institutions is awarded directly to students through state grant programs rather than through the institutions.

Relationship Between Financial Aid and Cost

Ratio of Financial Aid to Total Cost

On average, financial aid covered 42 percent of the student-reported cost of attending for low income undergraduates enrolling full time, full year in 1992–93 (table 12).[17] Sixty-five percent of their aid was in the form of grants, and 26 percent in the form of loans.

The different ratios across institution types reflect in part differences in the cost of attending. Pell grants are normally awarded to financially needy students first, with other grants, loans, and work-study aid added where unmet need still exists. For example, the average ratio of loans to total aid was 11 percent at public less-than-4-year institutions, but 32 percent at public 4-year institutions, where average costs were higher (see table 7).

Overall, the federal government was the source of most financial aid (77 percent, on average). State aid programs added another 10 percent, and institutional aid programs, 9 percent. Differences in these ratios across institution types reflect the availability of various sources of aid at different types of institutions. For example, the relative unavailability of state and institutional aid at private, for-profit institutions increased students' reliance on federal aid. On average, 93 percent of the aid to full-time, full-year low income students at private, for-profit institutions came from federal sources, compared with 65 percent to 81 percent at other types of institutions (figure 10).

Institutional aid accounted for an average of 21 percent of all aid to students in private, not-for-profit 4-year institutions who received aid. However, institutional sources were relatively unimportant in other types of institutions: 9 percent in public 4-year institutions and even less elsewhere.

Net Cost and Unmet Need

The net cost to the student is the amount left after subtracting the total amount of financial aid (grants, loans, and work study) from the total student-reported cost. In 1992–93, full-time, full-year low income undergraduates had an average net cost of $7,600, ranging from $6,500 at public 4-year to $9,700 at private, for-profit institutions (figure 11 and table 13). While financial aid does not equalize educational costs across types of institutions, it does have an impact on the relative costs of attending some types of institutions. For example, while the average total cost of attending a public less-than-4-year institution was less than the average total cost of attending a public 4-year institution ($10,100 compared with $11,400, table 7), the average net cost was not less ($7,300 compared with $6,500, table 13).

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[17]This includes students without aid. Because 99 percent of all full-time, full-year low income students had financial need and thus would have been eligible for financial aid, it seemed more appropriate to include all of them in the calculation of the ratios in this table, rather than to limit the calculation to just those who received aid.

Table 12—Mean aid ratios for low income undergraduates attending full time, full year, by dependency status and type of institution: 1992–93

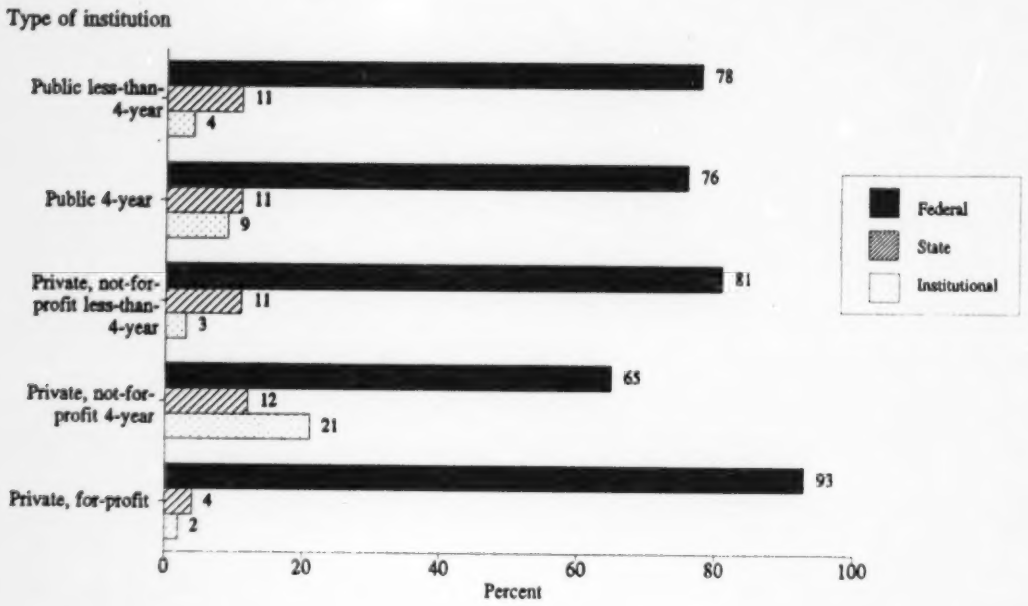
	Total aid/ student-reported cost	Grants/ total aid	Loans/ total aid	Federal aid/ total aid	State aid/ total aid	Institutional aid/ total aid
			Total			
Total	42.0	65.1	26.4	76.7	10.0	9.1
Institution type						
Public less-than-4-year	31.1	77.2	11.4	78.5	10.6	4.2
Public 4-year	46.0	60.0	31.8	75.9	11.0	8.6
Private, not-for-profit less-than-4-year	45.9	74.4	18.0	81.2	10.9	3.2
Private, not-for-profit 4-year	51.5	64.8	26.7	64.7	12.0	20.5
Private, for-profit	33.3	61.7	34.0	93.0	3.6	1.9
			Dependent			
Total	49.1	69.2	22.9	73.8	11.3	12.5
Institution type						
Public less-than-4-year	35.8	83.4	7.4	74.9	11.6	13.0
Public 4-year	48.8	66.6	26.2	75.5	12.3	8.9
Private, not-for-profit less-than-4-year	52.8	77.6	16.3	87.3	8.9	1.4
Private, not-for-profit 4-year	57.6	69.7	21.8	63.8	11.8	22.0
Private, for-profit	44.6	56.4	35.9	94.0	3.6	1.1
			Single independent			
Total	42.8	59.9	30.3	74.6	9.5	9.6
Institution type						
Public less-than-4-year	29.5	74.2	11.5	75.9	8.1	2.6
Public 4-year	47.0	55.3	35.3	75.5	10.3	8.7
Private, not-for-profit less-than-4-year	—	—	—	—	—	—
Private, not-for-profit 4-year	49.1	59.5	30.4	62.2	12.3	22.4
Private, for-profit	35.8	56.7	39.2	91.5	3.4	2.3
			Independent with dependents			
Total	34.0	66.7	25.9	82.0	9.3	4.9
Institution type						
Public less-than-4-year	30.0	76.3	13.2	81.6	11.6	1.3
Public 4-year	39.6	57.3	34.8	77.4	10.1	8.1
Private, not-for-profit less-than-4-year	41.3	74.2	17.9	80.7	13.3	2.6
Private, not-for-profit 4-year	40.9	62.4	31.8	71.6	12.2	13.6
Private, for-profit	28.4	65.9	30.8	93.3	3.6	1.9

—Sample size was too small for a reliable estimate.

NOTE: The ratio "total aid/student-reported cost" was calculated for all students; the other ratios were calculated for aided students only.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Figure 10—Average percentage of total aid received by aided low income undergraduates from federal, state, and institutional sources, by type ofinstitution: 1992–93



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

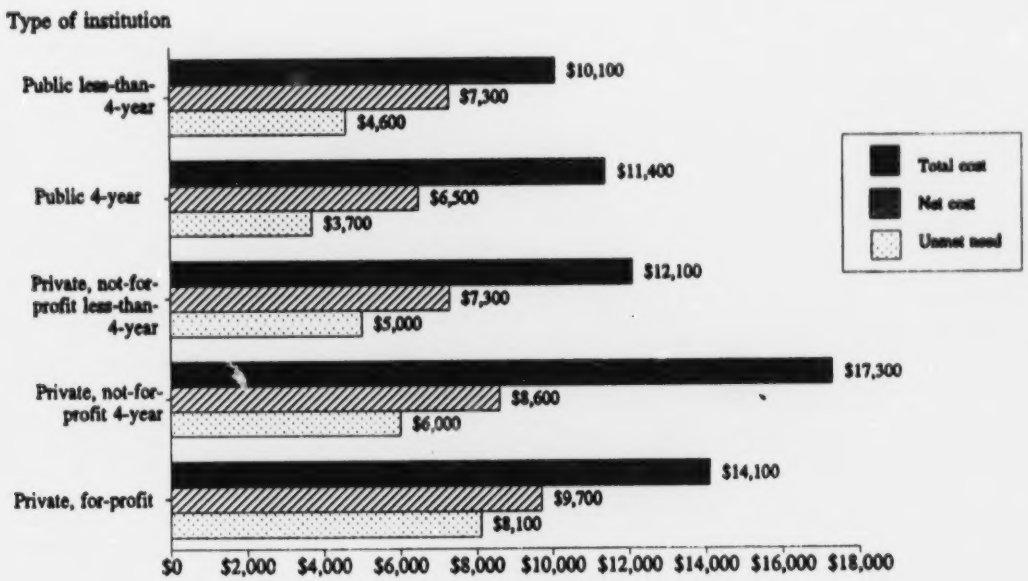
Financial aid reduced educational costs for full-time, full-year low income students. Nevertheless, a substantial gap remained between their average net cost of $7,600 and their average EFC of $1,600.

Unmet need, for financial aid purposes, is what remains after subtracting financial aid and the EFC from the budget established by the institution (not student-reported costs). In 1992–93, 94 percent of all full-time, full-year low income students had unmet need (table 13). The overall average unmet need (including students with zero need) was $4,900, and ranged from $3,700 at public 4-year institutions to $8,100 at private, for-profit institutions.[18] Independents with dependents had the greatest unmet need at each type of institution, reflecting their lower EFCs and partially reflecting the maximum award limits in grant and loan programs.

In part, the unmet need also reflects an apparent reluctance of low income students to borrow. Despite their unmet need, full-time, full-year low income students did not always

[18]The average unmet need was somewhat lower than the gap between net costs and the EFC. This can be explained by the fact that unmet need is calculated with reference to the institutionally determined budget (which averaged $10,900, table 7), while net costs are calculated with reference to student-reported costs (which averaged $12,600).

Figure 11—Average total cost, net cost, and unmet need for low income undergraduates attending full time, full year, by type of institution: 1992–93



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

borrow as much as they could have through the Stafford loan program (table 14). A full 64 percent of those with $2,000 or more in unmet need did not take out a Stafford loan, and another 15 percent borrowed less than the maximum. Those with the lowest net costs and lowest unmet need (less than $1,000) were more likely than those with net costs or unmet need greater than $2,000 to have borrowed the maximum. This pattern is expected, because borrowing contributed to reducing their need and net cost.

Table 13—Mean net cost, EFC, need, and unmet need for low income undergraduates attending full time, full year, by dependency status and type of institution: 1992–93

	Net cost[1]	Expected family contribution (EFC)	Financial aid need[2]			Unmet need[3]		
				With need			With unmet need	
			Average[4]	Percent	Average	Average[4]	Percent	Average
Total								
Total	$7,552	$1,607	$9,421	99.4	$9,479	$4,938	94.1	$5,250
Institution type								
Public less-than-4-year	7,285	1,067	7,035	100.0	7,035	4,550	98.7	4,610
Public 4-year	6,530	1,805	8,004	99.2	8,068	3,658	90.4	4,048
Private, not-for-profit less-than-4-year	7,334	999	9,062	100.0	9,062	4,984	96.8	5,151
Private, not-for-profit 4-year	8,608	2,148	13,594	98.8	13,765	5,960	93.5	6,375
Private, for-profit	9,703	1,181	11,811	99.7	11,844	8,087	98.4	8,222
Dependent								
Total	5,835	1,924	9,270	99.3	9,331	4,185	92.3	4,532
Institution type								
Public less-than-4-year	4,879	1,319	5,837	100.0	5,837	3,563	97.4	3,659
Public 4-year	5,381	2,044	7,515	99.1	7,582	3,356	90.4	3,711
Private, not-for-profit less-than-4-year	4,399	1,610	7,693	100.0	7,693	3,619	90.9	3,982
Private, not-for-profit 4-year	6,917	2,140	13,743	99.2	13,855	5,275	92.4	5,707
Private, for-profit	7,051	1,613	11,308	100.0	11,308	6,939	95.0	7,304
Single independent								
Total	7,388	2,493	8,834	98.8	8,937	4,407	91.2	4,830
Institution type								
Public less-than-4-year	6,892	2,194	6,304	100.0	6,304	4,175	97.5	4,282
Public 4-year	6,392	2,370	7,637	98.9	7,724	3,273	87.0	3,763
Private, not-for-profit less-than-4-year	—	—	—	—	—	—	—	—
Private, not-for-profit 4-year	9,422	3,105	13,207	97.5	13,549	5,994	91.8	6,532
Private, for-profit	9,157	2,583	10,995	99.0	11,106	7,126	97.8	7,283
Independent with dependents								
Total	9,473	337	10,201	100.0	10,201	6,269	98.8	6,345
Institution type								
Public less-than-4-year	8,586	273	8,004	100.0	8,004	5,211	100.0	5,211
Public 4-year	8,733	367	9,504	100.0	9,504	4,872	96.5	5,050
Private, not-for-profit less-than-4-year	9,322	261	10,420	100.0	10,420	6,157	100.0	6,157
Private, not-for-profit 4-year	11,213	466	13,928	100.0	13,928	7,545	99.2	7,610
Private, for-profit	10,826	339	12,383	100.0	12,383	8,940	99.7	8,966

—Sample size was too small for a reliable estimate.

[1]Attendance-adjusted total cost minus total aid.
[2]Attendance-adjusted budget minus EFC.
[3]Attendance-adjusted budget minus EFC and aid.
[4]Includes all low income undergraduates.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Table 14—Percentage distribution of low income undergraduates attending full time, full year according to Stafford Loan status, by selected financial characteristics: 1992–93

	Stafford loan amount		
	None	Some	Maximum
	Total		
Total	55.0	21.3	23.8
Net cost[1]			
Less than $1,000	33.5	29.7	36.8
$1,000–$1,999	44.4	28.8	26.8
$2,000–$4,999	47.7	25.3	27.0
$5,000–$9,999	57.7	20.0	22.4
$10,000 or more	66.0	15.6	18.5
Unmet need[2]			
Less than $1,000	26.3	40.9	32.8
$1,000–$1,999	30.9	35.8	33.3
$2,000 or more	63.7	15.4	20.9
Aid status			
Not aided	100.0	(3)	(3)
Aided	48.9	24.1	27.0
	Dependent		
Total	54.7	23.5	21.9
Net cost[1]			
Less than $1,000	35.8	37.1	27.2
$1,000–$1,999	46.9	24.2	28.9
$2,000–$4,999	54.4	24.7	20.9
$5,000–$9,999	59.9	21.5	18.6
$10,000 or more	63.2	15.0	21.9
Unmet need[2]			
Less than $1,000	32.8	40.9	26.3
$1,000–$1,999	40.7	32.0	27.3
$2,000 or more	64.0	16.6	19.4
Aid status			
Not aided	100.0	(3)	(3)
Aided	49.1	26.4	24.5
	Single independent		
Total	52.1	22.7	25.2
Net cost[1]			
Less than $1,000	27.5	29.2	43.2
$1,000–$1,999	43.8	29.1	27.2
$2,000–$4,999	40.8	27.6	31.6
$5,000–$9,999	57.1	20.8	22.1
$10,000 or more	65.0	17.6	17.4
Unmet need[2]			
Less than $1,000	25.6	40.9	33.6
$1,000–$1,999	27.3	41.1	31.6
$2,000 or more	62.7	14.9	22.3
Aid status			
Not aided	100.0	(3)	(3)
Aided	45.8	25.7	28.5

Table 14—Percentage distribution of low income undergraduates attending full time, full year according to Stafford Loan status, by selected financial characteristics: 1992–93—Continued

	Stafford loan amount		
	None	Some	Maximum
	Independent with dependents		
Total	58.3	17.5	24.3
Net cost[1]			
Less than $1,000	39.0	12.6	48.4
$1,000–$1,999	37.7	43.1	19.2
$2,000–$4,999	45.6	22.8	31.6
$5,000–$9,999	56.2	17.4	26.4
$10,000 or more	67.7	14.5	17.9
Unmet need[2]			
Less than $1,000	5.0	40.8	54.2
$1,000–$1,999	17.5	33.1	49.4
$2,000 or more	64.3	15.0	20.7
Aid status			
Not aided	100.0	(3)	(3)
Aided	52.0	20.1	27.9

[1]Attendance-adjusted total cost minus total aid.
[2]Attendance-adjusted budget minus EFC and aid.
[3]Not applicable.

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Sources of Support Other Than Financial Aid

Although the federal and state governments, postsecondary institutions, and other organizations provide substantial amounts of student financial aid, the net cost to full-time, full-year low income undergraduates and their families was $6,500 to $10,000 in 1992–93, depending on the type of institution attended (see table 13). These amounts are well beyond the EFCs.

Where do low income students obtain the funds they need to cover their educational costs? Because the NPSAS data provide only partial information on the financial circumstances of students and their families, this question cannot be answered with precision. However, NPSAS does provide some information on two of the most important sources of funds: parental support and student earnings.

Parental Support

The financial aid system has different expectations about parental support for dependent and independent students. Parents of dependent students are expected to help pay their children's educational costs, while there is no such expectation for parents of independent students. It is therefore appropriate to look at parental support separately for dependent and independent students.

Dependent Students

Low income families often have difficulty helping their children pay for their education. In 1992–93, 50 percent of low income dependent undergraduates who attended full time, full year received money from their parents. Among those who did, the average amount was $2,800 (table 15). In contrast, 78 percent of the full-time, full-year dependent undergraduates who were not from low income families received money from their parents. They received an average of $5,600, about twice as much as their low income counterparts (table 16).

Of particular interest is parental support to the low income dependent students who did not receive financial aid (although only 11 percent of full-time, full-year low income dependent undergraduates were in this position, table 8). The unaided students were much more likely than their aided counterparts to receive parental contributions (77 percent compared with 46 percent), and they received more, on average ($6,000 compared with $1,900) (table 15). This suggests that while the parents of low income dependent students without financial aid in 1992–93 had low incomes in 1991 (the reference year for determining income), they had other financial resources. For example, they may not have been low income on a long-term basis and may have been able to accumulate savings before 1991, or a noncustodial parent may have made a substantial contribution.

Nine percent of low income dependent undergraduates attending full time, full year received loans from their parents, averaging $1,800 (table 15). A similar percentage

(11 percent) of their non low income counterparts received loans from their parents (table 16), but the non low income students received more, on average ($3,100 compared with $1,800), reflecting their families' greater resources.

Parents often make non-cash contributions to their students' support in addition to or in place of direct financial assistance. For example, students may live at home while enrolled or during the summer, allowing them to reduce their housing costs and save money from summer jobs to cover educational expenses. Parents may offer a variety of other types of support, such as furniture, meals, clothing, or the use of a car, to name only a few. It is very difficult to attach a dollar value to this kind of assistance.

Independent Students

Although parents are not expected to help their independent children pay for their education, 39 percent of low income single independent undergraduates attending full time, full year received parental contributions averaging $3,500 in 1992–93 (table 15). Their non low income counterparts were less likely to receive such help (31 percent) (table 16). This is not surprising, because the students who were not low income would have had less need for parental support. Low income independent students may or may not have low income parents. Whether or not their parents contribute is influenced by both their willingness to contribute and their financial ability to do so.

Parental contributions to independents with dependents followed a similar pattern, with low income students also being more likely to receive assistance. Twenty-one percent of low income students attending full time, full year received contributions from their parents, in contrast to 12 percent of their non low income counterparts (tables 15 and 16).

Work

The majority of full-time, full-year low income students worked in 1992–93: 63 percent worked while enrolled, and 68 percent worked at some point during the year (table 15). They were actually less likely than their non low income counterparts to work at some point during 1992–93 (tables 15 and 16). This was true for dependent students and independent students with dependents; single independent students were about equally likely to work whether or not they were low income.

While one might expect low income independent students attending full time, full year to be less likely than their non low income counterparts to work (not working makes them more likely to have low incomes), it is not obvious why the same would be true for low income dependent students attending full time, full year. One possibility is that their family backgrounds give them less access to jobs. Among dependent students who worked while attending full time, full year, the average hours worked per week while enrolled were similar (about 20 hours) for low and non low income students, which suggests that scheduling demands may not be a factor.

Table 15—Percentage of low income undergraduates attending full time, full year who had various sources of support and average amounts received by supported students, by selected student characteristics: 1992–93

	Contributions from parents		Loans from parents		Worked while enrolled		Earnings during AY 1992–93[1]		Loans through loan programs	
	Percent	Average amount	Percent	Average amount	Percent	Average hours	Percent	Average amount	Percent	Average amount[2]
Total										
Total	37.1	$2,930	9.6	$2,077	63.2	22	67.9	$4,157	48.3	$3,465
Net cost[3]										
Less than $1,000	33.5	1,817	6.1	—	63.0	18	74.3	3,001	71.1	3,929
$1,000–$1,999	37.8	1,066	4.8	—	51.6	20	57.3	2,971	58.5	3,036
$2,000–$4,999	34.9	1,383	8.2	1,517	60.3	20	67.8	3,329	56.1	3,544
$5,000–$9,999	37.3	2,142	8.7	1,582	65.6	24	69.1	4,167	45.8	3,399
$10,000 or more	39.9	5,552	14.1	2,679	65.2	25	66.6	5,521	36.3	3,338
Unmet need[4]										
Less than $1,000	36.6	2,051	6.5	1,838	76.1	21	81.5	3,828	77.8	3,375
$1,000–$1,999	31.4	1,773	10.1	1,377	67.8	20	79.4	3,379	74.0	3,195
$2,000 or more	37.9	3,219	10.1	2,176	60.3	23	63.6	4,369	39.2	3,560
Expected family contribution (EFC)										
Less than $500	22.3	2,229	8.5	1,559	48.2	25	52.0	4,797	45.9	3,450
$500–$999	45.2	2,431	10.2	1,408	57.9	21	67.6	2,869	44.1	2,958
$1,000–$1,999	41.6	3,136	10.0	2,439	69.9	21	74.3	3,635	51.9	3,758
$2,000 or more	44.9	3,551	10.0	2,703	80.5	23	82.5	4,943	51.0	3,502
Aid status										
Not aided	58.9	4,924	12.3	2,463	70.7	23	70.2	5,190	([5])	—
Aided	33.0	2,257	9.1	1,982	61.8	22	67.5	3,981	54.8	3,465
Loan status										
Did not borrow	39.4	3,552	9.1	1,920	59.5	23	62.5	4,376	([5])	—
Borrowed	34.5	2,080	10.1	2,240	67.5	22	73.5	3,958	100.0	3,465
Dependent										
Total	49.9	2,801	9.1	1,840	67.4	21	75.1	3,175	48.8	2,957
Net cost[3]										
Less than $1,000	41.2	1,129	5.4	—	66.3	16	80.1	2,372	70.9	2,957
$1,000–$1,999	50.6	1,126	3.1	—	45.2	18	55.5	2,097	55.9	2,608
$2,000–$4,999	48.3	1,374	8.8	—	57.2	18	68.9	2,364	48.8	2,923
$5,000–$9,999	48.5	1,742	10.5	1,674	80.0	23	83.0	3,845	43.1	3,089
$10,000 or more	60.8	7,654	12.8	2,840	72.7	23	78.1	4,152	39.8	3,045
Unmet need[4]										
Less than $1,000	43.4	1,343	6.5	—	78.6	20	83.6	3,280	71.2	2,888
$1,000–$1,999	38.3	1,577	10.0	—	61.8	18	81.4	2,855	64.8	2,774
$2,000 or more	53.7	3,312	9.7	2,080	65.0	21	71.3	3,197	38.9	3,037
Expected family contribution (EFC)										
Less than $500	48.5	—	5.1	—	62.3	—	74.4	3,403	50.4	3,177
$500–$999	48.4	2,446	10.1	1,493	57.1	21	68.3	2,536	45.4	2,864
$1,000–$1,999	52.6	3,206	8.7	—	64.8	19	71.4	2,769	54.9	3,039
$2,000 or more	50.1	3,228	8.4	—	87.4	22	91.0	4,270	49.7	2,994
Aid status										
Not aided	77.1	5,965	11.9	—	75.5	21	76.5	3,940	([5])	—
Aided	45.5	1,931	8.7	1,709	66.2	21	74.9	3,063	54.8	2,957

Table 15—Percentage of low income undergraduates attending full time, full year who had various sources of support and average amounts received by supported students, by selected student characteristics: 1992–93—Continued

	Contributions from parents		Loans from parents		Worked while enrolled		Worked during AY 1992–93[1]		Loans through loan programs	
	Percent	Average amount	Percent	Average amount	Percent	Average hours	Percent	Average amount	Percent	Average amount[2]
Dependent (continued)										
Loan status										
Did not borrow	50.5	$3,568	8.2	$1,535	64.8	21	70.4	$3,379	(5)	—
Borrowed	49.1	1,892	10.1	2,116	70.2	20	79.8	2,996	100.0	2,957
Single independent										
Total	39.2	3,467	11.4	2,713	74.3	23	77.1	4,566	51.5	3,824
Net cost[3]										
Less than $1,000	36.0	2,931	7.5	—	68.4	20	76.3	3,805	75.8	4,614
$1,000–$1,999	26.2	—	9.9	—	79.8	22	80.7	4,160	61.0	3,749
$2,000–$4,999	31.7	1,544	9.4	1,902	72.7	21	76.2	4,103	64.6	3,918
$5,000–$9,999	38.5	3,010	7.5	2,418	70.8	24	75.0	4,560	46.2	3,658
$10,000 or more	50.3	5,308	20.3	3,388	81.2	23	80.4	5,361	37.4	3,467
Unmet need[4]										
Less than $1,000	37.1	3,159	7.5	—	81.5	23	86.4	4,420	79.5	3,697
$1,000–$1,999	35.0	1,993	12.7	—	81.7	22	85.9	4,026	76.5	3,466
$2,000 or more	40.2	3,707	12.0	2,997	71.9	23	73.5	4,707	40.6	3,996
Expected family contribution (EFC)										
Less than $500	13.4	—	19.9	—	72.3	—	84.9	4,607	65.6	3,350
$500–$999	—	—	2.2	—	72.4	—	75.4	—	44.5	3,554
$1,000–$1,999	38.2	3,199	11.2	2,466	72.6	21	76.7	3,911	51.4	4,001
$2,000 or more	42.1	3,864	11.3	3,029	76.6	23	77.3	5,386	51.1	3,706
Aid status										
Not aided	59.0	4,718	13.2	—	81.8	21	80.9	4,906	(5)	—
Aided	35.1	3,031	11.1	2,427	72.9	23	76.4	4,506	58.4	3,824
Loan status										
Did not borrow	42.7	4,156	10.0	3,269	72.9	23	74.3	4,663	(5)	—
Borrowed	35.4	2,566	12.9	2,271	75.8	23	79.7	4,482	100.0	3,824
Independent with dependents										
Total	21.2	2,260	8.3	1,439	48.7	25	51.2	4,981	44.3	3,581
Net cost[3]										
Less than $1,000	11.1	—	5.0	—	48.6	—	56.6	3,315	62.9	5,089
$1,000–$1,999	20.9	—	2.3	—	27.6	—	30.3	—	62.3	—
$2,000–$4,999	15.4	—	5.1	—	47.0	22	52.9	3,790	56.3	3,912
$5,000–$9,999	23.4	1,478	8.1	—	47.0	25	49 9	4,030	48.1	3,366
$10,000 or more	23.4	3,358	10.7	1,720	52.4	27	52.8	6,568	34.2	3,378
Unmet need[4]										
Less than $1,000	8.6	—	3.3	—	53.1	20	58.2	3,848	95.5	3,777
$1,000–$1,999	13.1	—	5.8	—	57.6	22	65.9	3,268	88.3	3,379
$2,000 or more	22.7	2,325	8.8	1,329	47.8	25	49.7	5,242	38.3	3,575
Expected family contribution (EFC)										
Less than $500	21.2	2,289	8.2	1,512	46.7	25	49.5	4,928	44.7	3,473
$500–$999	16.4	—	15.5	—	57.0	24	57.1	5,672	30.7	3,848
$1,000–$1,999	22.1	—	2.9	—	65.3	19	63.0	4,724	44.4	4,635
$2,000 or more	—	—	—	—	—	—	—	—	60.1	4,596

Table 15—Percentage of low income undergraduates attending full time, full year who had various sources of support and average amounts received by supported students, by selected student characteristics: 1992–93—Continued

	Contributions from parents		Loans from parents		Worked while enrolled		Worked during AY 1992–93[1]		Loans through loan programs	
	Percent	Average amount	Percent	Average amount	Percent	Average hours	Percent	Average amount	Percent	Average amount[2]
Independent with dependents (continued)										
Aid status										
Not aided	42.3	$3,502	11.8	—	56.2	29	54.6	$7,051	([5])	—
Aided	16.9	1,634	7.6	1,642	47.3	24	50.6	4,579	51.0	3,581
Loan status										
Did not borrow	25.1	2,592	9.3	926	43.9	26	45.4	5,335	([5])	—
Borrowed	15.8	1,524	6.9	2,377	55.3	23	58.8	4,622	100.0	3,581

—Sample size was too small for a reliable estimate.

[1]Includes earnings in summer 1992.
[2]Average amount includes only students with loans.
[3]Attendance-adjusted total cost minus total aid.
[4]Attendance-adjusted budget minus EFC and aid.
[5]Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Full-time, full-year low income students who were working while enrolled worked an average of 22 hours per week. They earned an average of $4,200 during the year (including summer). Dependent students earned less, on average, than independent students ($3,200 compared with $4,600 for single independents and $5,000 for independents with dependents). The lower earnings for dependent students may reflect their younger age. Average earnings for low income students enrolled full time, full year were less than those for their non low income counterparts, who earned an average of $4,900.

Parental Contributions, Work, and Loans

Parental contributions, work, and loans are sometimes substituted for one another. If parents are unable or unwilling to contribute or if students do not want to accept parental help, the major alternatives are work and loans. The tradeoff between work and loans reflects borrowing limits set by loan programs, availability of jobs, time available to work, and students' willingness to go into debt.

Loans and Parental Contributions

Borrowing was associated with lower parent contributions for full-time, full-year low income students. Among dependent students, about one-half received parental contributions whether or not they borrowed, but students with loans received less from their parents, on average ($3,600 compared with $1,900) (table 15). Among independent students, those who borrowed were less likely than those who did not borrow to receive help from their parents, and if they did receive help, the average amount was less.

Table 16—Percentage of non low income undergraduates attending full time, full year who had various sources of support and average amounts received by supported students, by selected student characteristics: 1992–93

	Contributions from parents		Loans from parents		Worked while enrolled		Earnings during AY 1992–93[2]		Loans through loan programs	
	Percent	Average amount	Percent	Average amount	Percent	Average hours	Percent	Average amount	Percent	Average amount[2]
Total										
Total	67.6	$5,504	10.7	$3,058	77.1	22	79.0	$4,893	29.9	$3,460
Net cost[3]										
Less than $1,000	56.4	2,124	11.3	2,287	73.4	16	81.1	2,429	69.6	3,751
$1,000–$1,999	56.9	1,677	8.2	—	72.3	20	74.7	3,306	47.7	3,408
$2,000–$4,999	65.7	2,311	10.7	1,671	81.8	21	83.2	3,930	38.7	3,421
$5,000–$9,999	71.2	3,729	10.4	2,382	80.9	22	82.3	4,638	29.5	3,308
$10,000 or more	67.0	8,764	11.0	4,193	72.9	23	75.0	5,854	22.5	3,595
Unmet need[4]										
Less than $1,000	74.9	5,641	10.3	3,052	80.2	21	82.9	4,595	24.9	3,172
$1,000–$1,999	62.0	4,180	12.5	2,140	82.5	22	81.9	4,322	46.2	3,252
$2,000 or more	62.1	5,564	10.8	3,255	74.2	23	75.3	5,274	31.9	3,685
Expected family contribution (EFC)										
Less than $500	23.2	2,832	7.4	—	70.0	24	69.8	7,171	60.5	3,936
$500–$999	48.5	1,807	10.4	1,779	64.9	23	70.4	4,359	50.5	3,157
$1,000–$1,999	42.7	2,258	9.2	2,337	75.5	22	79.1	5,201	51.1	3,382
$2,000 or more	72.0	5,811	10.9	3,213	78.3	22	79.9	4,827	26.0	3,461
Aid status										
Not aided	74.1	6,476	10.7	3,178	75.7	23	75.4	5,505	(5)	—
Aided	60.8	4,248	10.6	2,928	78.7	21	82.6	4,351	57.3	3,460
Dependent										
Total	77.8	5,597	11.3	3,141	78.8	20	81.2	3,910	28.1	3,206
Net cost[3]										
Less than $1,000	60.0	2,137	10.0	2,523	76.4	16	83.7	2,334	69.9	3,542
$1,000–$1,999	61.0	1,677	8.7	—	74.3	20	76.9	3,088	46.6	3,149
$2,000–$4,999	68.7	2,339	10.7	1,722	82.2	21	83.8	3,735	36.7	3,187
$5,000–$9,999	78.3	3,781	10.9	2,387	82.1	21	83.5	4,093	27.0	3,114
$10,000 or more	85.0	9,070	12.5	4,470	74.3	20	77.8	4,056	19.2	3,243
Unmet need[4]										
Less than $1,000	79.8	5,691	10.6	3,169	80.8	20	83.7	4,073	23.8	3,079
$1,000–$1,999	68.4	4,324	13.8	2,208	82.8	21	82.5	3,616	42.6	3,088
$2,000 or more	77.2	5,691	11.8	3,340	76.3	21	78.4	3,772	29.5	3,325
Expected family contribution (EFC)										
Less than $500	64.4	3,341	14.1	—	76.0	22	83.0	3,756	49.6	3,275
$500–$999	60.5	1,950	11.2	1,122	65.7	18	74.1	2,220	54.7	2,801
$1,000–$1,999	64.0	1,991	10.3	2,084	76.8	19	83.1	2,783	57.0	3,063
$2,000 or more	79.3	5,884	11.4	3,297	79.6	21	81.4	4,042	24.7	3,250
Aid status										
Not aided	82.7	6,556	10.9	3,176	78.1	22	78.0	4,605	(5)	—
Aided	72.2	4,353	11.9	3,104	79.7	19	84.5	3,247	55.6	3,206
Single independent										
Total	30.6	$4,186	8.5	$2,276	77.2	29	75.7	$9,803	34.5	$4,470
Net cost[3]										
Less than $1,000	—	—	—	—	—	—	—	—	64.4	—
$1,000–$1,999	—	—	—	—	—	—	—	—	—	—
$2,000–$4,999	23.3	—	4.4	—	81.9	27	81.1	6,757	65.0	5,073
$5,000–$9,999	29.6	2,136	8.3	—	80.6	27	80.0	7,971	38.1	3,914
$10,000 or more	34.8	6,078	8.2	3,204	75.0	31	72.9	12,087	23.2	4,452

Table 16—Percentage of non low income undergraduates attending full time, full year who had various sources of support and average amounts received by supported students, by selected student characteristics: 1992–93—Continued

	Contributions from parents		Loans from parents		Worked while enrolled		Earnings during AY 1992-93[1]		Loans through loan programs	
	Percent	Average amount	Percent	Average amount	Percent	Average hours	Percent	Average amount	Percent	Average amount[2]
Single independent (continued)										
Unmet need[4]										
Less than $1,000	19.0	2,942	8.1	—	80.9	30	80.8	10,892	37.4	3,671
$1,000–$1,999	40.0	—	8.3	—	84.5	26	82.8	7,646	49.8	4,215
$2,000 or more	38.7	5,282	9.4	3,135	74.8	28	72.4	9,315	42.6	5,028
Expected family contribution (EFC)										
Less than $500	—	—	—	—	—	—	—	—	51.2	—
$500–$999	—	—	—	—	—	—	—	—	—	—
$1,000–$1,999	19.2	—	13.3	—	76.8	24	78.7	6,563	69.5	4,451
$2,000 or more	32.3	4,367	8.9	2,316	78.1	29	76.7	9,963	38.2	4,508
Aid status										
Not aided	40.0	5,100	8.6	3,368	68.5	29	65.5	11,405	([5])	—
Aided	22.9	2,886	8.3	1,339	84.3	29	83.9	8,813	62.1	4,470
Independent with dependents										
Total	11.8	2,750	6.8	2,578	66.5	30	64.7	10,751	39.9	4,151
Net cost[3]										
Less than $1,000	—	—	—	—	—	—	—	—	—	—
$1,000–$1,999	—	—	—	—	—	—	—	—	—	—
$2,000–$4,999	31.9	—	17.7	—	71.0	25	65.9	6,869	57.4	4,884
$5,000–$9,999	11.3	2,923	5.7	—	66.4	30	68.4	9,619	52.9	4,069
$10,000 or more	11.1	2,939	6.6	2,651	67.7	30	64.9	11,376	34.8	4,047
Unmet need[4]										
Less than $1,000	8.5	—	5.7	—	60.4	30	60.8	11,834	39.6	4,187
$1,000–$1,999	5.5	—	1.4	—	77.0	26	74.1	9,601	88.6	3,574
$2,000 or more	12.6	2,904	7.4	2,780	66.9	30	64.8	10,687	37.4	4,195
Expected family contribution (EFC)										
Less than $500	10.6	1,862	5.5	—	67.7	25	64.9	8,480	64.5	4,015
$500–$999	23.9	—	9.6	—	62.1	33	61.5	10,028	38.4	4,158
$1,000–$1,999	10.2	4,963	6.9	—	73.5	28	72.1	9,991	36.4	3,964
$2,000 or more	10.6	2,658	6.7	—	63.8	33	61.5	12,247	31.6	4,386
Aid status										
Not aided	12.8	4,161	10.4	3,101	61.1	33	57.1	12,653	([5])	—
Aided	11.0	1,541	4.3	1,666	70.4	28	70.0	9,681	64.3	4,151

—Sample size was too small for a reliable estimate.

[1]Includes earnings in summer 1992.
[2]Average amount includes only students with loans.
[3]Attendance-adjusted total cost minus total aid.
[4]Attendance-adjusted budget minus EFC and aid.
[5]Not applicable.

NOTE: Totals include students with missing data on characteristics shown in the detail. Therefore, the percentages or amounts for all students may be higher or lower than any of the percentages or amounts shown in the detail.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Loans and Work

Full-time, full-year low income students who borrowed were more likely than students who did not borrow to work, perhaps reflecting their greater need for funds.[19] However, the amount of time worked while enrolled was about the same whether students borrowed or not: among low income students who attended full time, full year, students who did not borrow worked an average of 23 hours per week when enrolled, and those who did borrow worked an average of 22 hours.

Parental Contributions and Work

Low income students attending full time, full year who received less than $1,000 from their parents worked more while enrolled, on average (23 hours per week), than those who received $1,000 or more from their parents (19 hours). This suggests that when parents are unable or unwilling to contribute, students work more.[20]

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[19]Considering low income students separately by dependency status, the difference was statistically significant for independents with dependents, but not for dependents or single independents.

[20]U.S. Department of Education, National Center for Education Statistics, 1992-93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

Persistence and Attainment Among Low Income Students

A frequent concern is that low income students may be forced to drop out or interrupt their education for financial reasons. In fact, among undergraduates enrolling in postsecondary education for the first time in 1989–90 who were seeking a degree or certificate, low income students were more likely than other students to have not attained and not be enrolled in 1994 (44 percent compared with 36 percent) (table 17). Limiting consideration to students seeking a bachelor's degree, the relationship was the same (although bachelor's degree seekers overall were less likely to be no longer enrolled): 30 percent of low income students had not completed their degree and were no longer enrolled, compared with 24 percent of other students (table 18).

Table 17—Percentage distribution of 1989–90 first-time beginners seeking any degree according to enrollment status in 1994, by income group in 1989–90

	Completed any degree	Still enrolled	No longer enrolled
Total	49.7	12.9	37.5
Income group			
Low income	46.6	9.9	43.5
Not low income	50.6	13.6	35.9

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Beginning Postsecondary Students Longitudinal Study Second Follow-up (BPS:90/94), Data Analysis System.

Table 18—Percentage distribution of 1989–90 first-time beginners seeking a bachelor's degree according to enrollment status in 1994, by income group in 1989–90

	Completed bachelor's degree			Still enrolled			
	No interruption	With interruption	Path unknown	No interruption	With interruption	No longer enrolled	Changed degree objective
Total	37.8	5.9	0.9	13.8	7.4	24.7	9.6
Income group							
Low income	28.0	4.5	1.8	15.2	8.1	29.8	12.5
Not low income	39.3	6.1	0.8	13.6	7.3	23.7	9.3

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Beginning Postsecondary Students Longitudinal Study Second Follow-up (BPS:90/94), Data Analysis System.

If low income students were more likely than other students to have to interrupt their studies for financial reasons, this should be most evident among students seeking bachelor's degrees, because they take longer to complete. However, both groups were about equally likely to have interrupted their enrollment and returned whether they completed their studies or were still enrolled in 1994.

Persistence is affected by a variety of factors other than income. This study's approach of controlling for group differences by crosstabulation has limitations with survey data: sample size limits the number of cells into which the data can be usefully subdivided, and there are complex interrelationships among variables that cannot be disentangled in tabular analyses.

To overcome these limitations, linear models are frequently used to examine several sets of variables simultaneously. One such model, linear regression, is used here to estimate these effects (adjusted means).[21] The regression model takes into account the effect of all variables in the model simultaneously and thus controls for interrelationships among variables that can influence tabular findings. By estimating the joint effect of all variables taken together, regression models can be used to test individual parameters while holding constant the influence of other variables.

Of particular interest here is whether the pattern of greater likelihood of leaving without completing or reenrolling found among low income students is related to their low income status, or whether it is related to other characteristics associated with persistence that are more common among low income students. Table 19 shows the adjusted percentages of 1989–90 beginning postsecondary students seeking degrees who completed any degree by 1994 or were still enrolled, taking into account other student characteristics. The unadjusted means are included for comparison.

Low income was not a significant predictor of attaining any degree or being still enrolled in postsecondary education when other variables in the model were taken into consideration. Characteristics associated with a higher likelihood of attaining any degree or being still enrolled included being female, having parents with a bachelor's degree or higher (compared with high school or less), receiving parental contributions, and having taken out a loan in at least one year.[22] Characteristics associated with a lower likelihood of attaining any degree or being still enrolled were being black, non-Hispanic (compared with white, non-Hispanic), enrolling part time to start, and borrowing from parents.

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[21]Appendix B contains a description of the means adjustment method. A logistic regression model would be an alternative to a linear regression model.

[22]It should be noted, however, that income and borrowing are likely to be related. In addition, for dependent students, parental education and income are related.

Table 19—Percentage of 1989–90 beginning postsecondary students who had either attained a degree or who were still enrolled as of spring 1994, and the adjusted percentage after taking into account the covariation of the variables listed in the table[1]

	Unadjusted percentage[2]	Adjusted percentage[3]	WLS coefficient[4]	Standard error[5]
Total	64.0	64.0	0.510	
Gender				
Female	65.6	66.0*	0.042	0.017
Male	62.2	61.8	†	†
Race-ethnicity				
American Indian/Alaskan Native	—	74.7	0.109	0.089
Asian/Pacific Islander	74.1	71.6	0.078	0.044
Black, non-Hispanic	57.3	56.4*	-0.073	0.036
Hispanic	64.3	71.0	0.072	0.042
White, non-Hispanic	64.2	63.7	†	†
Dependency status				
Independent	47.9	62.2	-0.025	0.040
Dependent	69.6	64.7	†	†
Institution type				
Private, not-for-profit				
Less-than-2-year	79.9	87.6	0.210	0.120
2- to 3-year	60.3	56.6	-0.100	0.059
4-year	79.4	68.0	0.014	0.030
Private, for-profit				
Less-than-2-year	68.8	72.7	0.061	0.048
2- to 3-year	56.4	57.6	-0.090	0.050
4-year	—	81.9	0.153	0.616
Public				
Less-than-2-year	56.4	67.5	0.009	0.073
2- to 3-year	53.4	60.5	-0.061	0.034
4-year	73.3	66.6	†	†
Attendance status 1989–90				
Part-time	44.0	55.3*	-0.115	0.033
Full-time	70.7	66.8	†	†
Income group				
Low income	58.2	61.9	-0.026	0.024
Not low income	65.7	64.5	†	†
Number of dependents in 1989–90				
Dependents	48.1	65.5	0.017	0.040
No dependents	66.8	63.8	†	†
Delayed entry after high school				
Delayed	47.3	62.3	-0.024	0.028
No delay	72.0	64.7	†	†
Parent's education				
Some college, less than bachelor's degree	65.3	63.2	0.038	0.021
Bachelor's degree	73.5	69.1*	0.097	0.021
Advanced degree	79.3	73.3*	0.139	0.026
High school or less	56.9	59.4	†	†

Table 19—Percentage of 1989–90 beginning postsecondary students who had either attained a degree or who were still enrolled as of spring 1994, and the adjusted percentage after taking into account the covariation of the variables listed in the table[1]—Continued

	Unadjusted percentage[2]	Adjusted percentage[3]	WLS coefficient[4]	Standard error[5]
Financial contribution from parents in 1989–94				
Received parent contributions	72.4	68.7*	0.146	0.028
No parent contributions	46.9	54.1	†	†
Loan from parents in 1989–94				
Received loan from parents	69.4	60.3*	-0.049	0.021
No loan from parents	66.2	65.2	†	†
Average hours worked/week while enrolled 1989–90				
1–14 hours/week	78.6	69.1	0.049	0.028
15–24 hours/week	69.6	64.7	0.004	0.023
25 or more hours/week	58.1	62.7	-0.016	0.022
No work while enrolled	65.9	64.2	†	†
Student education loan 1989–94				
Received education loan	76.0	72.7*	0.128	0.020
Did not receive education loan	58.2	59.9	†	†

—Sample size was too small for a reliable estimate.
*$p \leq .05$, comparing to the reference group, indicated by †.
†Not available for reference group.

[1]The last group in each category is the reference group for comparison.
[2]Estimates from BPS:90/94 Data Analysis System.
[3]Percentages adjusted for differences associated with other variables in the table (see appendix B for details).
[4]Weighted least squares (WLS) coefficient (see appendix B for details).
[5]Standard error of WLS coefficient, adjusted for design effect (see appendix B for details).

NOTE: Total includes students with missing data on characteristics shown in the detail. Therefore, the percentage for all students may be higher or lower than any of the percentages shown in the detail.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Beginning Postsecondary Students Longitudinal Study Second Follow-up (BPS:90/94), Data Analysis System.

Summary and Conclusion

Twenty percent of all undergraduates have family incomes below 125 percent of the poverty threshold established by the federal government for their family size. The average budget for a full-time, full-year low income undergraduate in 1992–93 was $10,900. However, according to the methodologies for calculating financial need, the expected average EFC for low income students was only $1,600, leaving a large gap between educational costs and what low income families were expected to pay.

To help provide low income students with the opportunity to enroll in postsecondary education, the federal and state governments, the institutions in which students enroll, and other organizations supply a substantial amount of financial aid to help low income students pay for their postsecondary education. In 1992–93, 88 percent of all low income undergraduates who attended full time, full year received some form of aid (grants, loans, or work study), averaging a total of $5,800 for those receiving aid. Financial aid covered an average of 42 percent of their total costs. For aided students, 65 percent of the aid was in the form of grants, on average, and 26 percent was in the form of loans.

Despite this financial aid, full-time, full-year low income students, on average, were left with costs that exceeded their EFC. The average net cost for these students (the amount the student and his or her family had to pay after subtracting total financial aid from student-reported costs) was $7,600 (considerably higher than the average EFC of $1,600).

Exactly how students cover these costs is unknown. However, the NPSAS data provide some information on parent contributions and work, two major sources of support. While low income students attending full time, full year were less likely than those who were not low income to receive parental contributions (37 percent compared with 68 percent), those who did receive money from their parents received an average of $2,900. Full-time, full-year students worked an average of 22 hours per week while enrolled, whether or not they were low income. Those with low incomes who worked earned an average of $4,200 during the 1992–93 academic year (including the summer).

According to these data, parental support and work do not appear to have been sufficient to cover low income students' net costs, on average, yet they still somehow managed to attend. How? One possibility is that students overestimated their costs. It is very difficult for most people to remember exactly what they have spent on living expenses during any given year, especially if they are not living on campus and receiving room and board bills. Another possibility is that students actually earned more than they reported. Many students pick up extra cash through short-term jobs (sometimes lasting only a day), and this income may not have been included. They may also have underestimated the amount of money they received from their parents or they may have received substantial in-kind contributions from their parents or others.

Appendix A

Glossary

This glossary is arranged in alphabetical order. The variables were taken directly from the NCES NPSAS:93 Undergraduate Data Analysis System (DAS), as well as the NPSAS:90 DAS and the Beginning Postsecondary Students Longitudinal Study Second Followup (BPS:94) DAS. These are NCES software applications that generate tables from the NPSAS:93, NPSAS:90, and BPS:94 data, respectively. A description of the DAS software can be found in appendix B. The labels in parentheses correspond to the names of the variables in the DAS.

Age as of 12/31/92 (AGE)

Less than 24	Student was 23 years old or younger as of 12/31/92.
24 to 29 years	Student was between 24 and 29 years old as of 12/31/92.
30 years old or older	Student was 30 years old or older as of 12/31/92.

Attendance pattern (ATTNSTAT)

Attendance pattern describes the student's full- or part-time attendance while enrolled, as defined by the institution, and the number of months a student was enrolled during the year. Students were considered to have been enrolled for a full year if they were enrolled at least 9 months between July 1992 and June 1993.

Full-time, full-year	Student was enrolled full time, for the full year, at one or more institutions.
Full-time, part-year	Student was enrolled full time, for part of the year, at one or more institutions.
Part-time, full-year	Student was enrolled part time, for the full year, at one or more institutions.
Part-time, part-year	Student was enrolled part time, for part of the year, at one or more institutions.

Attendance status: intensity (ATTEND2)

Student's attendance status, as defined by the institution, during the fall or during the first month enrolled after October 1992.

Full-time	Student was enrolled full time in the first term enrolled.
Half-time or more	Student was enrolled less than full time, but at least half time in the first term enrolled.
Less than half-time	Student was enrolled less than half time or an unknown amount in the first term enrolled.

Considerations in Selecting the Institution (COURSOFF; SCHNWRK; LIVEHOME; GD_REP; SCHCLOSE; TUITLESS; PLACEMNT; SHORTER; FINAID)

Students were asked to indicate whether certain reasons were "very important," "somewhat important," or "not important" to them in deciding upon the school they attended in fall 1989. Table 4 reports the percentages of students who reported the following reasons were "very important":

The school offered the course of study the student wanted.
The student could work while attending the school.
The student could live at home.
The school had a good reputation.
The school was close to home.
The tuition and other direct school expenses were less at the school than at other schools.
The school had a good reputation for placing its graduates.
The student could finish the course in a short period of time.
The student obtained the financial aid needed at the school.

Contribution from parents (SPARSPRT)

Student-reported amount of direct monetary contribution from both parents for academic year 1992–93 school expenses, not including loans or income-in-kind.

Degree program (PROGRAM)

Degree program in which the student was enrolled; reported by the institution.

Associate's	Student was pursuing an associate's degree.
Bachelor's	Student was pursuing a Bachelor of Arts or Bachelor of Science degree.
Certificate/formal award	Student was pursuing a certificate or other formal program other than an associate's or bachelor's degree.
Other undergraduate	Student was not in any of the above programs.

Delayed enrollment in postsecondary education (DELAYENR)

Student delayed enrollment into postsecondary education. Immediate enrollment is defined as entry into PSE the same calendar year as graduating from high school or receiving a GED. The assumption is that high school graduation takes place in May or June and entry into PSE takes place the subsequent summer or fall of the same year.

Did not delay	Student entered PSE the same calendar year as high school graduation or GED receipt.
1 year	Student entered PSE in the year after the year of high school graduation or GED receipt. Note that in the rare event a high school student graduated in December and entered PSE the following January, the student would be considered a delayed entrant.
2–4 years	Student entered PSE 2 to 4 years after the year of high school graduation or GED receipt.
5 years or more	Student entered PSE 5 years or more after the year of high school graduation or GED receipt.

Dependency status for financial aid (DEPEND2)

Dependent	Student was considered financially dependent for financial aid purposes.
Single independent	Student was considered financially independent for financial aid purposes and had no dependents.
Independent with dependents	Student was considered financially independent for financial aid purposes and had dependents. Spouses were considered dependents.

Enrollment status in 1994:

Persistence toward a bachelor's degree (PERABA)

Persistence and attainment toward a bachelor's degree. Includes all undergraduates who were first-time beginners in the 1989-90 academic year and who reported at any time during their postsecondary careers that they were seeking a bachelor's degree (not institution-based). This variable tracks their persistence and attainment toward a bachelor's degree from the first time undergraduates indicated that they were seeking a degree.

Completer, no interruption	Student earned the bachelor's degree without any interruptions longer than 4 months.
Completer, with interruption	Student earned the bachelor's degree with at least one interruption of more than 4 months.

Still enrolled, no interruption	Student was still seeking the bachelor's degree in 1994, and had not interrupted study for more than 4 months.
Still enrolled, with interruption	Student was still seeking the bachelor's degree in 1994, and had interrupted study for more than 4 months at least once.
No longer enrolled	Student was seeking the bachelor's degree, had stopped enrollment and had not re-enrolled.
Changed degree objective	Student had been seeking the bachelor's degree but had since stated a different goal.

Enrollment status in 1994:

Persistence toward any degree (PERADEG)

Persistence and attainment toward any degree or certificate. Includes all undergraduates who were first-time beginners in the 1989-90 academic year who were seeking a degree or certificate. This variable shows where students ended up by the second followup with respect to specific degree attained and current enrollment.

Completed any degree	Student earned a certificate, associate's degree, or bachelor's degree.
Still enrolled	Student was enrolled in a degree or certificate program in 1994.
No longer enrolled	Student had stopped enrollment and was not enrolled in 1994.

Expected family contribution (EFC4)

Expected family contribution (EFC) as recorded by the institution. EFC is the amount of financial support for the student's undergraduate education that is expected to be provided by the student's family, or directly by the student if the student was financially independent. This amount is used to determine financial need, and is based upon dependency status, family income and assets, family size, and the number of children enrolled in postsecondary education. If this information was not available from the institution, then it was gathered from the financial aid system, from the student interview, or was imputed from student income. The average EFC is the average for all undergraduates.

Federal aid amount (TFEDAID)

Total amount of federal financial aid, including loans, grants, work study, and all other federal aid, excluding VA/DOD aid.

Federal aid/total aid (FEDPCT)

The proportion of total aid from federal sources, expressed as a percentage. The average ratio of federal aid to total aid is the average ratio for all students who received any aid.

Federal grants (TFEDGRT)

Total federal grants, including Pell grants, Supplemental Educational Opportunity Grants (SEOG), and other federal grants, scholarships, fellowships, and traineeships. These are all forms of student financial aid that do not require repayment or employment. This information was taken from financial aid records, as well as directly from the students.

Federal loans (TFEDLN)

Total federal loans to undergraduates, except PLUS loans (which are made to parents). Loans are a type of student financial aid that advances funds that are evidenced by a promissory note requiring the recipient to repay the specified amounts under prescribed conditions. Includes Perkins, Stafford, Supplemental Loans for Students (SLS), and all other federal loan programs. If this information was not available from financial aid records, student-reported information was used.

Financial need (Student budget minus expected family contribution) (SNEED3)

Financial need, equal to the sum of tuition actually charged and total non-tuition budget components, adjusted for attendance status (BUDGETAJ) less expected family contribution (EFC4). Students whose EFC exceeded need were assigned a value of zero for this variable. The average need is the average for all students, including those whose EFC was zero.

Grants (TOTGRT)

Total grants received in 1992-93. Grants are a type of student financial aid that does not require repayment or employment. Grants include scholarships and fellowships. Employer aid is also considered a grant.

Grants/total aid (GRTPCT)

The proportion of total aid that was grant aid, expressed as a percentage. The average ratio of grants to total aid is the average ratio for all students who received any aid.

Gender of student (GENDER)

Male

Female

Highest level of education ever expect to complete (ANYHILVL)

The highest level of education students reported they hoped to achieve.

Certificate/formal award	Student expected to earn a vocational certificate or license; or to attend college, but not to earn a bachelor's degree.
Associate's degree	Student expected to earn an associate's degree but not a bachelor's degree.
Bachelor's degree	Student expected to earn a bachelor's degree but not an advanced degree.
Advanced Degree	Student expected to earn a master's, doctoral, or first-professional degree.

Highest level of parent education (PAREDUC)

The highest level of education completed by the student's parents (mother or father, whichever was highest).

High school or less	Neither parent had any postsecondary education. Both parents graduated from high school or received a General Educational Development certificate (GED), or did not complete high school.
Some college	One or both parents had some postsecondary education, less than a bachelor's degree but including an associate's degree.
Bachelor's degree	One or both parents earned a bachelor's degree as their highest award.
More than a bachelor's degree	One or both parents earned an advanced degree including a master's degree, Ph.D., M.D., and so on.

Hours worked per week while enrolled in 1992–93 (EMWKHR3)

The average number of hours worked per week while enrolled (including work study). If a student reported being employed during the month, the average number of hours worked per week was derived based on the starting and ending dates and the hours reported for each job during the survey interview. Note that this variable only represents the average hours a student worked while working and enrolled. Thus, if a student worked an average of 20 hours per week while enrolled for 6 months and then did not work for the remaining 3 months of enrollment, the average hours would still be 20 hours per week.

Income: percent of poverty level (PCTPOV91)

Total income in 1991 as a percentage of federal poverty level thresholds for that year, as defined by the Bureau of the Census, based upon income, family size, and dependency status. (Income in 1991 was reported on financial aid applications for the 1992–93 academic year.) If the student was independent, the student's income and family size were used. If the student was dependent, parents' income and family size were used. The maximum ratio was set at 1,000 percent, and all values above that were set at 1,000 percent. A value below 100 percent means the family was below the poverty income level in 1991. Poverty cutoffs for 1991 were based upon family size as follows:

Family size	Poverty threshold
1	$7,086
2	$9,165
3	$10,860
4	$13,924
5	$16,456
6 or more	$18,587

Income: percent of poverty level (PCTPVRTY): Tables 4, 17, and 18 only

Total income in 1988 as a percentage of federal poverty level thresholds for that year, as defined by the Bureau of the Census, based upon income, family size, and dependency status. (Income in 1988 was reported on financial aid applications for the 1989–90 academic year). If the student was independent, student's income and family size were used. If the student was dependent, parents' income and family size were used. A value below 100 percent means the family was below the poverty income level in 1988. Poverty cutoffs for 1988 were based upon family size as follows:

Family size	Poverty threshold
1	$ 6,155
2	$ 7,958
3	$ 9,056
4	$12,092
5	$14,305
6 or more	$16,149

Institutional aid/total aid (INSTPCT)

The proportion of total aid that was institutional aid, expressed as a percentage. The average ratio of institutional aid to total aid is the average ratio for all students who received any aid.

Institutional aid amount (INSTAMT)

Total institutional aid amount. Institutional aid includes grants and loans from the institution attended, work-study positions; and research and teaching assistantships. It also includes assistantships funded by federal research grants.

Institutional grants (INGRTAMT)

Total amount of grants provided by the institution. Grants are a type of student financial aid that do not require repayment or employment. This aid includes both need-based and non-need-based tuition waivers, employee-related tuition waivers, and school-based academic and athletic scholarships.

Institutional level and control (SECTOR_B)

Institution type by level and control. Institution level indicates the institution's highest offering (length of program and type of certificate, degree, or award), and control indicates the source of revenue and control of operations.

Public less-than-4-year	Public less-than-4-year institution.
Public 4-year	Public 4-year institution.
Private, not-for-profit less-than-4-year	Private independent less-than-4-year institution.
Private, not-for-profit 4-year	Private independent 4-year institution.
Private, for-profit	Private, for-profit institution.

Local residence (LOCRES2)

On campus	Student lived in institution-owned living quarters for students on campus.
Off campus, with parents or relatives	Student lived with parents or other relatives off campus.
Other	Student lived off campus, not with parents or other relatives.

Loans/total aid (LOANPCT)

The percentage of total aid that was loans, expressed as a percentage. This variable is based on the ratio of TOTLOAN to TOTAID. The average ratio of loans to total aid is the average ratio for all students who received aid.

Loans (TOTLOAN)

Total loans received between 1992–93. This includes all loans through federal, state, or institutional programs except PLUS loans (which are made to parents). Loans are a type of student financial aid that advances funds evidenced by a promissory note requiring the recipient to repay the specified amounts under prescribed conditions.

Longitudinal sample weight (BPS94AWT)

Primary cross-sectional and longitudinal weight for BPS data used in the multivariate analysis. This weight allows for analysis of trends up through the 1993–94 academic year among the population of students who were first-time beginners in postsecondary education in the 1989–90 academic year. This weight takes advantage of both the BPS first followup (1991–92) and second followup (1993–94) surveys.

Marital status in 1992–93 (SMARITAL)

Student's marital status as of NPSAS interview date.

Not married or separated

Married

Net Cost: Total costs minus aid (NETCST1)

Net costs of attendance after all financial aid, adjusted for attendance. Equal to student-reported total costs of attendance (tuition and non-tuition expenses), adjusted for attendance status (TOTCOSTA), minus the total amount of all aid (TOTAID). The average cost is the average for all students, including those who did not report costs that exceeded total aid.

Pell grants (PELLAMT)

Total Pell grant amount. Grants are a type of student financial aid that does not require repayment or employment. Pell grants are awarded to undergraduates who have not yet earned a bachelor's degree and are intended as a financial base to which other forms of aid may be added. Award amounts were based upon need, the cost of the institution attended, and attendance status. To be eligible, students must attend at least half time. The maximum award in 1992–93 was $2,400.

Perkins loan amount (PERKAMT)

Amount of federal Perkins loan. The Perkins loan is a campus-based low interest loan for students who show exceptional financial need. Total awards, including awards from all previous years, cannot exceed $9,000 for undergraduate students.

Race–ethnicity (RACE)

Asian/Pacific Islander	A person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or Pacific Islands. This includes people from China, Japan, Korea, the Philippine Islands, Samoa, India, and Vietnam.
Black, non-Hispanic	A person having origins in any of the black racial groups of Africa, not of Hispanic origin.
Hispanic	A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
American Indian/ Alaskan Native	A person having origins in any of the original peoples of North America and who maintains cultural identification through tribal affiliation or community recognition.
White, non-Hispanic	A person having origins in any of the original peoples of Europe, North Africa, or the Middle East (except those of Hispanic origin).

Single parent (SINGLPAR)

Students who had dependents but were not married. Note that in the rare case a student was caring for dependents who were not the student's children (e.g., elderly parents or relatives) and the student was not married, the student is identified as a single parent.

Stafford amount (STAFFAMT)

Amount of Stafford loans during 1992–93. This includes all Stafford loans taken out at all institutions the student attended during the year. Stafford loans are long-term, low-interest loans administered by the federal government. Students borrow money for education expenses directly from banks or other lending institutions. The loans are guaranteed by the federal government. This program was formerly known as the Guaranteed Student Loan (GSL) program.

Stafford loan amount categories (STAFFCAT)

Stafford loan amounts, ordered into three categories:

None	Student did not receive a Stafford loan.
Some	Student received a Stafford loan of less than $4,000 (the maximum amount).
Maximum	Student received the maximum Stafford loan amount.

State aid amount (STATEAMT)

Total amount of state aid received in 1992-93. State aid includes state-based grants, loans, workstudy, and other state-based awards.

State aid/total aid (STAPCT)

The proportion of total aid that was state aid, expressed as a percentage. The average ratio of state aid to total aid is the ratio for all students who received any aid.

State grants (STGTAMT)

Total state-based grants, scholarships, fellowships, and traineeships, including the federal portion of State Student Incentive Grants (SSIG). These are all forms of student financial aid that do not require repayment or employment. If this information was not available from financial aid records, student-reported information was used.

Student budget, attendance-adjusted (BUDGETAJ)

Total student budget, equal to the sum of tuition actually charged and total non-tuition budget components, adjusted for attendance status. The average budget is the average for all students who had tuition and/or non-tuition expenses.

Student earnings, academic year (WKINC)

Total student income from all jobs between July 1, 1992 and June 30, 1993, including workstudy and assistantships, regardless of dependency status. These data were based upon student-reported information.

Supplemental Education Opportunity Grant (SEOGAMT)

The Supplemental Education Opportunity Grant (SEOG) is a campus-administered federal grant available to undergraduates who show exceptional financial need. Grants are a type of student financial aid that does not require repayment or employment. The SEOG is intended to supplement the Pell grant, and priority is given to undergraduates who have received a Pell grant. The maximum award is $4,000 per year. Eligibility for a SEOG grant does not guarantee receipt of an award, as funds available to each institution are limited. Eligibility is not based upon intensity of enrollment, so undergraduates who are enrolled less than half time may be eligible for a SEOG grant.

Supplemental Loan for Students amount (SLSAMT)

Amount of federal SLS (Supplemental Loan for Students). SLS loans are variable-interest rate (maximum 12 percent) loans that are awarded to independent undergraduates who are attending school at least half time. For students in full-year programs, the maximum loan amount is $4,000, provided the total of all loans does not exceed $20,000. SLS loans are offered by commercial lenders and interest accrues while the student is enrolled.

Total aid (TOTAID)

Total amount of all financial aid received from all sources, including federal, state, institution, and other sources. The percentage of students who received any financial aid is the percentage with positive amounts recorded for this variable. The average amount received is the average for all students who received any financial aid.

Total aid/student-reported cost (AIDCST2)

Ratio of total aid to student-reported total cost, adjusted for attendance. The average ratio is the average for all students who reported having costs of attendance.

Total amount of parent loans to student (SPARLOAN)

Student-reported sum of loans from both parents for 1992–93 academic year.

Total costs (TOTCOSTA)

Student-reported total costs, including tuition and fees and all other costs. The average amount is the average for all students, including those who did not report having any of these costs.

Unmet need: Student budget minus expected family contribution and aid (SNEED4)

Unmet need, equal to the sum of tuition actually charged and total non-tuition budget components, adjusted for attendance status (BUDGETAJ) less expected family contribution (EFC4) and total aid received that is subject to EFC limitations. Students whose expected family contribution and EFC-based aid exceeded need were assigned a value of zero for this variable.

Work study (TOTWKST)

Total work-study aid received. Work-study programs provide partial reimbursement of wages paid to students. They may be sponsored by the federal or state governments or by the institution.

Appendix B

Technical Notes and Methodology

The 1992–93 National Postsecondary Student Aid Study

The need for a nationally representative database on postsecondary student financial aid prompted the U.S. Department of Education to conduct the National Postsecondary Student Aid Study (NPSAS), a survey conducted every three years beginning in 1987. The NPSAS sample was designed to include students enrolled in all types of postsecondary education. Thus, it included students enrolled in public institutions; private, not-for-profit institutions; and private, for-profit institutions. The sample included students at 4-year and 2-year institutions, as well as students enrolled in occupationally specific programs that lasted for less than 2 years. United States service academies were not included in the institution sample because of their unique funding and tuition base, and certain other type of institutions were also excluded.[23]

NPSAS:93 included a stratified sample of approximately 66,000 eligible students (about 52,000 of whom were undergraduates) from about 1,100 institutions. Students were included in the sample if they attended a NPSAS-eligible institution; were enrolled between July 1, 1992 and June 30, 1993; and were enrolled in one or more courses or programs including courses for credit, a degree or formal award program of at least 3 months' duration, or an occupationally or vocationally specific program of at least 3 months' duration. Regardless of their postsecondary status, however, students who were also enrolled in high school were excluded.

The 1992–93 NPSAS survey sample, while representative and statistically accurate, was not a simple random sample. Instead, the survey sample was selected using a more complex three-step procedure with stratified samples and differential probabilities of selection at each level. First, postsecondary institutions were initially selected within geographical strata. Once institutions were organized by zip code and state, they were further stratified by control (i.e., public; private, not-for-profit; or private, for-profit) and offering (less-than-2-year, 2- to 3-year, 4-year nondoctorate-granting, and 4-year doctorate-granting). Sampling rates for students enrolled at different institutions and levels (undergraduate or other) varied, resulting in better data for policy purposes, but at a cost to statistical efficiency.

For each student in the NPSAS sample, there were up to three sources of data. First, institution registration and financial aid records were extracted. Second, a Computer Assisted Telephone Interview (CATI) was conducted with each student. Finally, a CATI designed for

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[23]Other excluded institutions were those offering only avocational, recreational, or remedial courses; those offering only in-house business courses; those offering only programs of less than 3 month's duration; and those offering only correspondence courses.

the parents or guardians of a subsample of students was conducted. Data from these three sources were synthesized into a single system with an overall response rate of about 85 percent.

For more information on the NPSAS survey, consult *Methodology Report for the 1993 National Postsecondary Student Aid Study* (Longitudinal Studies Branch, Postsecondary Education Statistics Division, Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, NCES 95-211.

Beginning Postsecondary Student Longitudinal Study

The Beginning Postsecondary Student Longitudinal Study (BPS) follows NPSAS:90 students who enrolled in postsecondary education for the first time in 1989–90. The first followup was conducted in spring 1992 and the second in spring 1994. BPS collected information from students on their persistence, progress, and attainment and on their labor force experience using a CATI. Approximately 8,000 students were included in the BPS sample.

Accuracy of Estimates

The statistics in this report are estimates derived from a sample. Two broad categories of error occur in such estimates: sampling and non-sampling errors. Sampling errors occur because observations are made only on samples of students, not on entire populations. Non-sampling errors occur not only in sample surveys but also in complete censuses of entire populations.

Non-sampling errors can be attributed to a number of sources: inability to obtain complete information about all students in all institutions in the sample (some students or institutions refused to participate, or students participated but answered only certain items); ambiguous definitions; differences in interpreting questions; inability or unwillingness to give correct information; mistakes in recording or coding data; and other errors of collecting, processing, sampling, and imputing missing data.

Data Analysis System

The estimates presented in this report were produced using the NPSAS:93 Undergraduate Data Analysis System (DAS) and the BPS:90/94 DAS. The DAS software makes it possible for users to specify and generate their own tables from the NPSAS data. With the DAS, users can recreate or expand upon the tables presented in this report. In addition to the table estimates, the DAS calculates proper standard errors[24] and weighted

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[24]The NPSAS sample is not a simple random sample and, therefore, simple random sample techniques for estimating sampling error cannot be applied to these data. The DAS takes into account the complexity of the sampling procedures and calculates standard errors appropriate for such samples. The method for computing sampling errors used by the DAS involves approximating the estimator by the linear terms of a Taylor series expansion. The procedure is typically referred to as the Taylor series method.

sample sizes for these estimates. For example, table B.1 presents the standard errors that correspond to table 8 in the text. If the number of valid cases is too small to produce an estimate, the DAS prints the message "low-N" instead of the estimate.

In addition to tables, the DAS will also produce a correlation matrix of selected variables to be used for linear regression models. Also output with the correlation matrix are the design effects (DEFT) for all the variables identified in the matrix. Since statistical procedures generally compute regression coefficients based on simple random sample assumptions, the standard errors must be adjusted with the design effects to take into account the NPSAS stratified sampling method. (See discussion under "Statistical Procedures" below for the adjustment procedure.)

For more information about the NCES NPSAS:90, NPSAS:93, and BPS:90/94 Data Analysis Systems, contact:

Aurora D'Amico
NCES Longitudinal Studies Branch
555 New Jersey Avenue, NW
Washington, DC 20208-5652
(202) 219-1365
Internet address: Aurora_D'Amico@ED.GOV

Statistical Procedures

Two types of statistical procedures were employed in this report: testing differences between means, and adjustment of means after controlling for covariation among a group of variables. Each procedure is described below.

Differences Between Means

The descriptive comparisons were tested in this report using Student's t statistic. Differences between estimates are tested against the probability of a Type I error, or significance level. The significance levels were determined by calculating the Student's t values for the differences between each pair of means or proportions and comparing these with published tables of significance levels for two-tailed hypothesis testing.

Student's t values may be computed to test the difference between estimates with the following formula:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2}} \qquad (1)$$

where E_1 and E_2 are the estimates to be compared and se_1 and se_2 are their corresponding standard errors. Note that this formula is valid only for independent estimates. When the estimates were not independent (for example, when comparing the percentages across a

Table B1—Standard errors for table 8: Percentage of low income undergraduates attending full time, full year who received various types of financial aid and the average amounts received by aided students, by dependency status and type of institution: 1992-93

	Total aid		Grants		Loans		Work study	
	Percent	Average amount	Percent	Average amount	Percent	Average amount	Percent	Average amount
Total								
Total	0.74	139.90	0.81	78.53	1.63	57.65	0.86	48.05
Institution type								
Public less-than-4-year	2.06	120.09	2.45	67.50	2.93	134.09	1.37	132.47
Public 4-year	1.03	115.08	1.20	60.56	1.89	54.94	0.98	52.77
Private, not-for-profit less-than-4-year	1.81	452.10	0.95	221.23	6.74	316.37	0.83	—
Private, not-for-profit 4-year	1.15	578.68	1.58	381.25	4.61	127.35	2.78	62.12
Private, for-profit	1.99	425.60	2.11	152.49	6.30	178.95	2.36	—
Dependent								
Total	1.15	218.32	1.37	133.95	2.44	68.80	1.50	50.39
Institution type								
Public less-than-4-year	4.89	172.65	4.75	114.94	4.80	—	4.19	—
Public 4-year	1.54	195.80	1.78	92.63	3.23	77.41	1.62	77.16
Private, not-for-profit less-than-4-year	0.67	438.88	0.67	118.38	5.43	—	0.41	—
Private, not-for-profit 4-year	1.73	791.46	2.49	555.37	5.95	135.82	4.31	68.48
Private, for-profit	1.48	420.33	2.39	113.66	5.20	189.84	0.42	—
Single independent								
Total	0.85	142.62	1.03	84.09	1.58	92.44	1.01	63.05
Institution type								
Public less-than-4-year	2.73	171.71	3.58	104.67	3.61	—	2.29	—
Public 4-year	1.20	97.04	1.46	63.42	1.98	81.78	1.18	106.33
Private, not-for-profit less-than-4-year	—	—	—	—	—	—	—	—
Private, not-for-profit 4-year	1.25	290.49	1.45	256.72	2.51	182.83	2.45	75.32
Private, for-profit	2.34	469.14	2.79	130.05	5.79	381.80	1.16	—
Independents with dependents								
Total	1.21	177.16	1.23	75.08	2.33	77.79	1.49	125.59
Institution type								
Public less-than-4-year	2.82	194.02	3.25	70.76	3.82	217.65	1.98	—
Public 4-year	1.72	122.84	1.87	89.96	2.50	93.64	1.67	107.01
Private, not-for-profit less-than-4-year	4.48	513.64	4.49	385.65	6.89	—	1.70	—
Private, not-for-profit 4-year	1.41	350.73	1.48	287.00	3.06	234.98	2.35	160.64
Private, for-profit	2.49	539.62	2.70	207.00	7.56	173.52	3.87	—

—Sample size was too small for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992-93 National Postsecondary Student Aid Study (NPSAS:93), Undergraduate Data Analysis System.

percentage distribution), a covariance term was added to the denominator of the *t*-test formula.

There are hazards in reporting statistical tests for each comparison. First, comparisons based on large *t* statistics may appear to merit special attention. This can be misleading, since the magnitude of the *t* statistic is related not only to the observed differences in means or percentages but also to the number of students in the specific categories used for comparison. Hence, a small difference compared across a large number of students would produce a large *t* statistic.

A second hazard in reporting statistical tests for each comparison occurs when making multiple comparisons among categories of an independent variable. For example, when making paired comparisons among different levels of income, the probability of a Type I error for these comparisons taken as a group is larger than the probability for a single comparison. When more than one difference between groups of related characteristics or "families" are tested for statistical significance, one must apply a standard that assures a level of significance for all of those comparisons taken together.

Comparisons were made in this report only when $p \leq .05/k$ for a particular pairwise comparison, where that comparison was one of k tests within a family. This guarantees both that the individual comparison would have $p \leq .05$ and that for k comparisons within a family of possible comparisons, the significance level for all the comparisons will sum to $p \leq .05$.[25]

For example, in a comparison of the percentages of males and females who enrolled in postsecondary education only one comparison is possible (males versus females). In this family, $k=1$, and the comparison can be evaluated without adjusting the significance level. When students are divided into five racial–ethnic groups and all possible comparisons are made, then $k=10$ and the significance level of each test must be $p \leq .05/10$, or $p \leq .005$. The formula for calculating family size (k) is as follows:

$$k = \frac{j \times (j-1)}{2} \qquad (2)$$

where j is the number of categories for the variable being tested. In the case of race–ethnicity, there are five racial-ethnic groups (American Indian, Asian/Pacific Islander, black non-Hispanic, Hispanic, and white non-Hispanic), so substituting 5 for j in equation 2,

$$k = \frac{5 \times (5-1)}{2} = 10$$

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[25]The standard that $p \leq .05/k$ for each comparison is more stringent than the criterion that the significance level of the comparisons should sum to $p \leq .05$. For tables showing the *t* statistic required to ensure that $p \leq .05/k$ for a particular family size and degrees of freedom, see Olive Jean Dunn, "Multiple Comparisons Among Means," *Journal of the American Statistical Association* 56: 52–64.

Adjustment of Means

Tabular results are limited by sample size when attempting to control for additional factors that may account for the variation observed between two variables. For example, when examining the percentages of those who completed a degree, it is impossible to know to what extent the observed variation is due to low income status differences and to what extent it is due to differences in other factors related to income, such as type of institution attended, parents' education, and so on. However, if a table were produced showing income within, type of institution within parent's education within, for example, the cell sizes would be too small to identify the patterns. When the sample size becomes too small to support controls for another level of variation, one must use other methods to take such variation into account.

To overcome this difficulty, multiple linear regression was used to obtain means that were adjusted for covariation among a list of control variables. Adjusted means for subgroups were obtained by regressing the dependent variable on a set of descriptive variables such as gender, race–ethnicity, parents' education, etc. Substituting ones or zeros for the subgroup characteristic(s) of interest and the mean proportions for the other variables results in an estimate of the adjusted proportion for the specified subgroup, holding all other variables constant. For example, consider a hypothetical case in which two variables, age and gender, are used to describe an outcome, Y (such as completing a degree). The variables age and gender are recoded into a dummy variable representing age and a dummy variable representing gender:

Age	A
24 years or older	1
Under 24 years old	0

and

Gender	G
Female	1
Male	0

The following regression equation is then estimated from the correlation matrix output from the DAS:

$$\hat{Y} = a + \beta_1 A + \beta_2 G \qquad (3)$$

To estimate the adjusted mean for any subgroup evaluated at the mean of all other variables, one substitutes the appropriate values for that subgroup's dummy variables (1 or 0) and the mean for the dummy variable(s) representing all other subgroups. For example, suppose we had a case where Y=was being described by age (A) and gender (G), coded as shown above, and the means for A and G are:

Variable	Mean
A	0.355
G	0.521

Suppose the regression equation results in:

$$\hat{Y} = 0.15 + (0.17)A + (0.01)G \quad (4)$$

To estimate the adjusted value for older students, one substitutes the appropriate parameter values into equation 3.

Variable	Parameter	Value
a	0.15	—
A	0.17	1.000
G	0.01	0.521

This results in:

$$\hat{Y} = 0.15 + (0.17)(1) + (0.01)(0.521) = 0.325 \quad (5)$$

In this case the adjusted mean for older students is 0.325 and represents the expected outcome for older students who look like the average student across the other variables (in this example, gender).

It is relatively straightforward to produce a multivariate model using NPSAS:93 or BPS:90/94 data, since one of the output options of the DAS is a correlation matrix, computed using pair-wise missing values.[26] This matrix can be used by most commercial regression packages as the input data to produce least-squares regression estimates of the parameters. That was the general approach used for this report, with two additional adjustments described below to incorporate the complex sample design into the statistical significance tests of the parameter estimates.

Most commercial regression packages assume simple random sampling when computing standard errors of parameter estimates. Because of the complex sampling design used for NPSAS:93, this assumption is incorrect. A better approximation of their standard errors is to multiply each standard error by the average design effect of the dependent variable (DEFT),[27] where the DEFT is the ratio of the true standard error to the standard error computed under the assumption of simple random sampling. It is calculated by the DAS and produced with the correlation matrix.

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[26]Although the DAS simplifies the process of making regression models, it also limits the range of models. Analysts who wish to use different error assumptions than pairwise or to estimate probit/logit models can apply for a restricted data license from NCES.

[27]The adjustment procedure and its limitations are described in C.J. Skinner, D. Holt, and T.M.F. Smith, eds. *Analysis of Complex Surveys* (New York: John Wiley & Sons, 1989).

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